

Chile

OCT. 1964

DETERMINACION PROVISORIA DE EPICENTROS. RED ANDES
PROGRAMA SISMOLOGICO. UNIVERSIDAD DE CHILE - ANTOFAGASTA

BOLETIN N° 17 - OCTUBRE DE 1964

Las coordenadas de las estaciones de la Red son:

ANT	<u>ANTOFAGASTA</u>	23° 42' 18" S	70° 24' 55" W	80 m
MIC	<u>MICHILLA</u>	22° 42' 23" S	70° 16' 01" W	100 m
SLN	<u>SALINAS</u>	23° 09' 14" S	69° 36' 40" W	1.350 m
QUL	<u>QUILLAGUA</u>	21° 39' 20" S	69° 31' 42" W	800 m
CAC	<u>CALAMA</u>	22° 28' 47" S	69° 01' 34" W	2.000 m
TCN	<u>TOCONCE</u>	22° 16.5' S	68° 10.3' W	3.300 m
LPB	<u>LA PAZ</u>	16° 31' 57.6" S	68° 05' 54.1" W	3.292 m

La estación de Toconce empezó a funcionar en 1965 y la de Ollagüe, en 1966.

Como chequeo del valor y la correspondencia de los tiempos se utiliza los gráficos S-P vs. P y/o S-P vs. S. La determinación de los hipocentros se ha hecho con el computador mecánico analógico al cual se le introducen las velocidades "medias" calculadas de las Tablas Jeffreys-Bullen (1958); en lo fundamental, se aprovecha la diferencia S-P comprobando y ajustando con los datos P.

En general, el error de las diferencias S-P es del orden de los $\pm 0,2$ seg; el de los tiempos de llegada a la estación Antofagasta, de $\pm 0,2$ seg, y el de los tiempos de llegada a las restantes estaciones, de $\pm 0,5$ seg. Todo lo anterior, según la apariencia general de los gráficos de corrección de hora e implicando buena definición de las fases.

La numeración (N° de orden) es correlativa a partir del Boletín N° 1.

El error de la hora origen se obtiene calculando la desviación standard con respecto a la hora origen, a su vez valor promedio compensado según los datos de los tiempos de llegada de P.

El error de las coordenadas es estimativo, tomando en cuenta la calidad de la solución.

Se menciona las estaciones usadas en el cálculo por medio de las iniciales de cada una de ellas.

El paréntesis indica dato dudoso.

Se agrega los datos de las tarjetas "PRELIMINARY DETERMINATION OF EPICENTERS" de la USCGS para sismos con suficiente información de la Red; además, los tiempos registrados en Arequipa y La Paz que también se usan en los cálculos aunque, para sismos en la zona misma de la Red y al sur de ella, presentan desviaciones sistemáticas por lo que, en estos casos, no se les da peso.

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Estamos recibiendo regularmente boletines de Zonda y La Paz,
lo que agradecemos.

OBSERVACIONES AL BOLETIN N° 17

El sismo del 24/10 registrado a las 06:56 en la Red tiene pro-
fundidad de 500-600 km y ocurrió en territorio argentino.

El sismo 565 del 31/10 es seguramente una explosión de la mina
de Mantos Blancos.

Antofagasta, Agosto de 1966

DETERMINACION PROVISORIA DE EPICENTROS

RED ANDES

PROGRAMA SISMOLOGICO

BOLETIN N° 17

OCTUBRE DE 1964

N° orden	FECHA	Hora origen		COORDENADAS			Profundidad (km)	Estaciones usadas	Determinado por:
			\pm seg σ .	λ	ϕ	\pm Min σ			
498	2/10	16 52 06.4	± 0.7	67.7°	21.7°		49	14	USCGS 77-64
499	2/10	18 12 38.0	± 0.2	68° 48'	24° 28'	3'	85	AMSC	R.A.
500	3/10	04 57 35.0	± 1.9	67° 53'	23° 33'	10'	260	AMSC	R.A.
501		09 15 43.3	± 1.3	66° 48'	22° 22'	3'	310	AMSC	R.A.
502		23 30 09.2	± 0.5	70° 09'	24° 57'	6'	20	A(M)S(C)	R.A.
503	4/10	06 59 32.3	± 0.4	70° 14'	22° 48'	3'	45	A(M)SC	R.A.
504		07 24 48.3	± 0.4	70° 42'	23° 57'	3'	70	AMS(C)	R.A.
505		10 27 58.8	± 1.0	69.7°	17.2°	12'	205	(A)MSC	R.A.
506	6/10	01 57 45.2	± 0.7	70° 37'	21° 31'	6'	85	AMS(C)	R.A.
507		04 11 23*	± 1.4	65.4°	28.4°		82	6	USCGS 78-64
508		23 44 01.3	± 0.5	67° 39'	24° 24'	6'	190	AMSQC	R.A.
509	8/10	14 38 02*	± 0.8	69.4°	22.6°		33	8	USCGS 78-64
510		17 17 15*	± 0.9	70.9°	32.1°		146	8	USCGS 85-64
511	11/10	07 24 53.8	± 0.6	69° 09'	22° 43'	6'	90	AMQC	R.A.
512		07 27 05.8	± 1.2	69° 12'	22° 50'	6'	85	AMQ(C)	R.A.
513		14 19 11.5	± 1.3	71.5°	17.9°		35	24	USCGS 80-64
514	12-10	07 03 12.4	± 1.5	68° 08'	21° 51'	3'	255	AMQC	R.A.
515	14/10	01 05 27.9	± 0.5	68° 40'	22° 24'	6'	115	AM(Q)(C)	R.A.
516		09 40 32.8	± 0.3	68° 42'	23° 33'	6'	125	A(M)(Q)(C)	R.A.
517	15/10	01 06 24.7	± 0.8	67° 59'	23° 52'	3'	265	AMSQC	R.A.
518		13 08 22.9	± 1.0	67° 41'	23° 52'	6'	240	A(M)S(Q)	R.A.
519	16/10	04 04 56.2	± 0.7	69° 14'	23° 06'	6'	85	MS(Q)(C)	R.A.
520		07 42 45.9	± 1.1	68° 45'	22° 19'	10'	95	(M)SQC	R.A.
521		08 19 12.4	± 0.6	69° 09'	21° 09'	6'	130	(M)(S)QC	R.A.
522	17/10	01 07 49.8	± 0.5	68.4°	29.6°	96		8	USCGS 83-64
523	18/10	01 07 28.8	± 0.8	68° 51'	22° 41'	6'	105	A(M)S(Q)(C)	R.A.

N° orden	Fecha	Hora origen		Coordenadas			Profundidad (km)	N° estaciones usadas	Determinado por:
			$\pm \frac{\text{seg}}{\sigma}$	λ	ϕ	$\pm \frac{\text{Min.}}{\sigma}$			
524	18/10	02 00 13.3	± 0.4	68°57'	23°26'	3'	120	A(M)S(C)	R.A.
525		02 45 27.5	± 0.5	67°17'	24°12'	3'	180	A(M)(S)C	R.A.
526		04 02 56.9	± 0.7	67°41'	24°02'	3'	225	AMS(Q)(C)	R.A.
527		04 07 25.3	± 0.4	69°03'	22°23'	6'	100	(M)(S)(Q)C	R.A.
528		10 41 50.4	± 0.4	67°13'	23°04'	6'	155	AMSQC	R.A.
529		16 09 16.6	± 0.4	70°23'	23°42'	3'	40	AMS(C)	R.A.
530		20 57 15*	± 0.9	67.1°	20.5°		210	9	USCGS 86-64
531	19/10	02 14 57.2	± 0.8	08°37'	21°43'	6'	155	AMSQC	R.A.
532	20/10	04 21 20.6	± 0.8	68°33'	21°49'	3'	140	(M)SQC	R.A.
533		05 15 06.0	± 0.3	69°16'	23°16'	3'	100	A(M)S(Q)C	R.A.
534		21 47 22.5	± 0.4	68°45'	22°32'	3'	100	MS(Q)C	R.A.
535	21/10	05 09 34.0	± 0.3	67°33'	23°42'	3'	240	AMSQ(C)	R.A.
536		13 07 47.0	± 0.7	68°47'	21°57'	6'	130	M(S)QC	R.A.
537	22/10	03 02 49.6	± 0.6	68°19'	24°20'	10'	180	A(M)SC	R.A.
538		03 55 45.4	± 0.5	69°43'	22°08'	3'	65	A(M)(S)(C)	R.A.
539		14 01 35.0	± 0.6	68°46'	21°53'	6'	100	(A)MSC	R.A.
540		14 26 16.4	± 0.6	67°32'	23°42'	3'	285	AMSC	R.A.
541		15 23 17.7	± 0.8	68°46'	20°27'	6'	180	AMSC	R.A.
542		19 41 40.6	± 0.5	67°52'	24°12'	6'	235	AMSC	R.A.
543	23/10	18 58 55.0	± 0.8	68°40'	22°43'	6'	85	AMSC	R.A.
544		20 10 53.9	± 0.2	68°44'	22°32'	3'	105	AMSC	R.A.
545		21 26 18.4	± 0.8	67°32'	24°00'	6'	240	A(M)(S)C	R.A.
546	24/10	03 00 29.3	± 0.6	69°09'	22°43'	3'	85	AMSC	R.A.
547		06 27 00.1	± 1.0	67°38'	23°50'	10'	220	A(M)S(C)	R.A.
548		07 14 17.0	± 1.0	68°16'	20°52'	6'	235	AM(S)C	R.A.
549		09 02 40.2	± 1.0	68°40'	22°24'	6'	105	(A)MSC	R.A.
550	26/10	15 09 09.3	± 1.2	66.0°	17.8°		204	12	USCGS 84-64
551	27/10	06 12 48.8	± 1.0	71.4°	20.8°		8	12	USCGS 88-64
552	28/10	00 22 07.3	± 0.8	70.7°	29.6°		45	19	USCGS 84-64

N° orden	Fecha	Hora origen		Coordenadas			Profundidad Km	N° Estaciones usadas	Determinado por:
			$\pm \frac{\text{seg}}{g}$	λ	ϕ	$\pm \frac{\text{Min}}{g}$			
553	28/10	22 45 21.3	± 0.3	67°35'	23°38'	3'	260	AMS(C)	R.A.
554	29/10	03 14 24.2	± 0.3	68°42'	22°12'	6'	120	AMSQC	R.A.
555		07 38 40.8	± 0.6	70°21'	23°12'	3'	25	AMSC	R.A.
556		10 03 48.1	± 0.3	67°12'	23°23'	3'	250	AMSQ(C)	R.A.
557		19 05 55.5	± 0.7	66°47'	23°46'	6'	160	AMS(Q)C	R.A.
		19 05 43*	± 0.7	65.6°	22.8°		127	12	USCGS 88-64
558	30/10	00 41 09.9	± 1.4	69°05'	21°09'	6'	105	(A)M(S)Q(C)	R.A.
559		14 55 48.4	± 0.5	69°54'	22°38'	6'	25	AMQ(C)	R.A.
560		16 11 06.2	± 0.5	69°12'	21°20'	3'	115	AMQC	R.A.
561	31/10	00 49 46.3	± 0.9	69°08'	21°20'	6'	140	AM(Q)C	R.A.
562		02 01 43.0	± 0.3	67°57'	23°49'	6'	250	AM(Q)(C)	R.A.
563		03 17 59.0	± 0.3	68°39'	21°35'	6'	150	(A)MQC	R.A.
564		17 18 22.9	± 0.6	69°13'	21°22'	10'	120	AM(Q)C	R.A.
565		20 14 13.7	± 0.5	70°03'	23°23'	3'	0	AM(S)QC	R.A.

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
	2/10	eP 01 02 02.8 e(S) 02 35.0	S-P=25.7	eP 01 01 55.6 eS 02 28.3 S-P=32.7		eP 01 01 48.5 i(S) 02 15.0		
498		iP 16 52 55.5 iS 53 22.2	iP 16 52 48.1 SAT	iP 16 52 45.1 i(S) 53 07.7		iP 16 52 36.2		P 16 53 35 (S) 54 38 (S-P)=63
		COMP	DILAT	DILAT		DILAT		
499		eP 18 13 05.5 iS 13 25.8 S-P=20.3	eP 18 13 13.2 i 13 14.6 e(S) 37.5 i 39.8	iP 18 13 03.4 e(S) 13 20.7 i 23.0		e(P) 18 13 09.8 i 13 10.9 eS 33.5 i 35.6		
				DILAT				
500	3/10	eP 04 58 10.7 eS 58 46.6 S-P=35.9	iP 04 58 14.2 iS 58 50.9	e(P) 04 58 04.6 iS 58 36.5 S-P=31.9		i(P) 04 58 05.9 iS 58 36.3		
			DILAT	COMP				
501		eP 09 16 47.4 eS 17 36.8	iP 09 16 43.6 eS 17 23.6 i 17 30.1	iP 09 16 37.2 eS 17 08.4 i 17 19.7		eP 09 16 31.2 iS 17 09.7		
			COMP	DILAT				
		e(P) 10 55 02	eP 10 54 50.1 i 54 52.8 e(S) 55 17.4 i 21.0	eP 10 54 49.7 i 51.6 iS 55 20.6		eP 10 54 41.4 i 54 42.0 iS 55 05.5 i 06.6	eP 10 55 27.0 eS 56 21.3	eP 10 55 16
				DILAT		COMP		
502		e(P) 23 30 30.4 e 30 42.4 iS 46.0	eP 23 30 45.4 e(S) 30 58.7 e 31 13.1	eP 23 30 39.6 i(S) 31 02.7		e(P) 23 30 53.3 e(S) 31 24.8		
				COMP				
503	4/10	eP 06 59 50.4 iS 07 00 03.2	iP 06 59 39.9 i(S) 59 44.4 i 59 45.2	e(P) 06 59 46.1 i 59 46.8 eS 56.5 i 57.7		eP 06 59 54.5 iS 07 00 10.5		
			DILAT	COMP		COMP		
504		iP 07 24 58.4 iS 25 06.8	eP 07 25 10.7 iS 25 28.1	iP 07 25 10.1 iS 25 27.4		eP 07 25 22.8 e(S) 25 49.2		
		DILAT		DILAT				

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA
505	4/10	eP 10 29 32 e(S) 30 44	eP 10 29 19.1 e 30 16.5 eS 30 21.6 i 23.9	eP 10 29 25.3 eS 30 32.9 i 30 38.0		eP 10 29 18.2 eS 30 19.0	iP 10 28 33.1 iS 29 01.3 S 28 53.0
				DILAT			
	5/10	iP 20 18 18.6 iS 18 32.4	S-P=17.0	iP 20 18 18.1 i(S) 18 32.6		iP 20 18 27.9 iS 18 49.7	
		COMP	DILAT	COMP		DILAT	
506	6/10	eP 01 58 20.1 eS 58 46	S-P=16.1	eP 01 58 15.9 i 58 16.5 e 58 37.4 iS 58 38.7		e(P) 01 58 15.0 e 58 29.3 iS 37.0	P 01 58 58.8 (S) 59 52.9
		COMP	DILAT	DILAT			
		e(P) 02 10 19.9 e(S) 10 42.3	S-P=19.1	iP 02 10 09.1 iS 10 25.3		iP 02 10 02.7 iS 10 13.5	
			DILAT	COMP		COMP	
507		eP 04 12 57.8 e(S) 13 57	(S-P)=65.8	iP 04 12 59.6 e(S) 13 59.6		e(P) 04 13 14.8 e(S) 14 19.8	P 04 13 05.8 S 14 09.6
			DILAT	DILAT			
508		eP 23 44 47.6 eS 45 22	S-P=37.7	iP 23 44 41.5 iS 45 13.0	S-P=38.5	eP 23 44 42.0 eS 45 13.8	
				COMP	DILAT		
	7/10	e(P) 10 52 01.2 S-P=21	S-P=16.1	iP 10 51 48.6 iS 52 01.3	S-P=16.0	iP 10 51 46.1 iS 51 56.8	
			DILAT	DILAT		COMP	
		eP 13 04 15.9 eS 04 54.8	S-P=41.2		S-P=39.0	iP 13 04 07.4 eS 04 40.5	
			DILAT		COMP		
509	8/10	iP 14 38 25.7 iS 38 39.0	S-P=10.4			iP 14 38 23.6 i(S) 38 34.8 i 38 43.4	iP 14 39 37.0 iS 40 47.2 Pg 40 03.5 S 41 04
		COMP				DILAT	
510		eP 17 08 38 i 08 44.9 e(S) 10 00.0 i 10 14.7	e(P) 17 08 43.7 i 09 00.1 i(S) 10 45.1 i 11 07.6			e(P) 17 07 33.8 e 07 44.6 i 57.2 e(S) 08 58.0	e(P) 17 10 17.0 i(S) 13 45.0 S 13 30 L (17.3

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
	11/10	eP 03 53 17 e(S) 53 42	iP 03 53 06.8 iS 53 28.8		S-P=15.7	eP 03 52 56.0 iS 53 09.5		
					DILAT			
511		eP 07 25 20.8 eS 25 40.4	eP 07 25 13.1 iS 25 28.1		S-P=16.2	iP 07 25 06.0 iS 25 15.8		
						COMP		
512		eP 07 27 31.8 eS 27 51	eP 07 27 24.2 iS 27 39.1		S-P=17.5	eP 07 27 20.5 i(S) 27 30.8		
		iP 08 55 01.4 iS 13.7	iP 08 54 52.0		S-P=21.5	iP 08 55 04.8	eP 08 56 17.8 eS 57 26.2	eP 08 56 35.0
		COMP	DILAT			COMP		
513		eP 14 20 36.6 i(S) 21 40.4	iP 14 20 23.6			eP 14 20 29.0 i 20 31.2 i 40.1 i(S) 21 29.4 i 21 32.0		iP 14 20 12.7 Pg 20 22.0 iS 21 12
			DILAT		DILAT			
		iP 17 22 00.2 eS 22 23.2	eP 17 21 55.0 iS 22 17.4		S-P=21.8	iP 17 21 47.6 iS 22 03.2		
		DILAT				DILAT		
		iP 19 22 49.2 iS 23 27.7	eP 19 22 50.2 iS 23 30.0		S-P=35.5	e(P) 19 22 41.1 i 41.9 iS 23 15.7		
			COMP			COMP		
	12/10	iP 01 09 55.3 eS 10 43	iP 01 09 48.4 iS 10 30.0		iP 01 09 41.0 iS 10 16.4	e(P) 01 09 37.1 e(S) 10 10.8		
			COMP					
		iP 04 42 21.0 eS 43 00.0	iP 04 42 20.5 e(S) 43 01.8		iP 04 42 24.1 e(S) 43 05.1	iP 04 42 13.3 e(S) 42 47.8		
					DILAT	(COMP)		
514		iP 07 04 05.1 eS 04 45	iP 07 03 57.9 iS 04 32.4		iP 07 03 51.6 iS 04 20.9	eP 07 03 46.5 iS 04 14.4	eP 07 04 44.6 eS 06 00.0	P 07 04 30.5 S 05 33
		DILAT	DILAT		DILAT			

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	
	12/10	eP 09 53 33 eS 54 36.7	iP 09 53 23.7 i(S) 54 05.0		iP 09 53 12.0 i(S) 53 49.1	iP 09 53 24.8 e(S) 54 07.6	iP 09 52 59.8 iS 53 27.9	iP 09 53 02.2 iS 32.8
					DILAT	COMP		
515	14/10	e(P) 01 06 03.5 i 05.0 e(S) 06 27.3	iP 01 05 55.2 iS 06 16.6		iP 01 05 51.2 i(S) 06 09.0	iP 01 05 45.0 i 56.9 i(S) 57.6		
			DILAT		COMP	COMP		
		e(P) 04 21 36.5 i 21 37.8 iS 58.8	iP 04 21 30.2 i(S) 50.2		iP 04 21 29.7 i(S) 50.0			eP 04 22 39
			DILAT		DILAT			
		eP 07 07 34.2 eS 08 09.8	e(P) 07 07 36.0		iP 07 07 12.7 e(S) 31.0	eP 07 07 22.5 eS 07 47.6		
			(COMP)					
516		eP 09 41 00.9 eS 41 22.7	e(P) 09 41 01.8 eS 41 23.7 i 26.6		e(P) 09 41 07.4 e(S) 41 34.4	e(P) 09 40 53.9 iS 41 12.3		
			(COMP)					
		eP 19 30 01 e(S) 30 26.5	eP 19 29 48.5 iS 30 11.4		iP 19 29 35.2	eP 19 29 41.4 iS 30 01.2		
			COMP		COMP	DILAT		
517	15/10	iP 01 07 10.0 eS 07 45.0 07 46.0	iP 01 07 12.5 iS 07 49.6	iP 01 07 04.7 iS 07 36.9	iP 01 07 16.2 iS 07 55.0	eP 01 07 04.7 iS 07 36.7		
		COMP	DILAT	DILAT	DILAT	DILAT		
518		eP 13 09 10.0 eS 09 46.1	e(P) 13 09 11.2 e(S) 09 49.2	iP 13 09 03.7 iS 09 36.6	iP 13 09 14.1 i(S) 09 53.0			
				COMP	DILAT			
		eP 17 34 17.2 e(S) 34 44.5	eP 17 34 07.7 i(S) 34 31.0	iP 17 34 06.0 iS 34 28.6	iP 17 33 59.9 i(S) 34 15.0	iP 17 33 58.7 iS 34 10.8		
			DILAT	DILAT	COMP	DILAT		
			iP 21 21 34.6 iS 21 44.5	eP 21 21 06.3 i(S) 21 31.5	eP 21 21 47.8 iS 22 06.9	eP 21 21 40.9 iS 21 53.0		
			COMP	(COMP)				

MES DE OCTUBRE AÑO 1964 HOJA DE DATOS N° 5

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
519	16/10		eP 04 05 17.0 iS 05 33.3	eP 04 05 11.1 i 05 19.8 iS 22.6	e(P) 04 05 24.8 e(S) 05 46.0	iP 04 05 14.1 i(S) 05 26.9		
				DILAT				
520		eP 07 43 18.5 e(S) 43 42.1	eP 07 43 10.1 i(S) 43 29.2	iP 07 43 08.4 iS 43 25.4	iP 07 43 07.1 iS 43 22.6	eP 07 43 01.0 iS 43 11.5		eP 07 41 07
			DILAT		(DILAT)			
521			e(P) 08 19 44.2 i(S) 20 09.0	e(P) 08 19 48.0 e(S) 20 15.0	iP 08 19 31.9 iS 19 46.9	eP 08 19 38.5 iS 20 58.6		P 08 20 34.7
					DILAT			
		eP 10 19 10.1 e(S) 19 31.1	iP 10 18 57.6 i(S) 19 12.3 i 19 12.8	S-P=18.6	iP 10 18 50.9 i(S) 18 58.9 i 19 04.9 i 19 12.3	eP 10 18 59.8 eS 19 15.3 i 19 16.6	iP 10 19 54.9 iS 20 52.4	P 10 19 59
			DILAT		DILAT			
		iP 18 52 48.4 iS 52 56.6	e(P) 18 53 00.8 iS 53 18.5	S-P=18.7	e(P) 18 53 09.4 iS 53 49.5	e(P) 18 53 14.4 i(S) 53 31.9		
		COMP						
		eP 21 42 31 eS 43 00.8		(S-P)=26.5	iP 21 42 03.6 i(S) 42 19.2	iP 21 42 18.2 e(S) 42 36.6 i 42 38.5		
					DILAT	DILAT		
	17/10	eP 00 23 37.3 i 23 37.8 iS 24 20.1		(S-P)=37.3	eP 00 23 32.4 iS 24 11.6	e(P) 00 23 23.9 eS 24 01.4		
					COMP			
522		eP 01 09 19.0 e(S) 10 24			eP 01 09 44.4 i 10 29.3 i 11 09.1	eP 01 09 34.0		
		eP 02 15 38.9 eS 16 00.6		S-P=15.9	e(P) 02 15 44.1 e(S) 16 03.9	eP 02 15 29.3 eS 15 43.4 i 15 43.9		
				COMP				

MES DE OCTUBRE AÑO 1964 HOJA DE DATOS N° 6

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
	17/10			eP 18 58 17.2 eS 59 23.5	e(P) 18 57 59.0 e(S) 58 46.5	eP 18 58 09.7 i 58 10.0 e(S) 59 07.8	eP 18 57 33.3 eS 58 05.0	
		eP 22 07 51.1 eS 08 25.9 i 08 30.1	eP 22 07 40.7 iS 08 08.1 (COMP)	iP 22 07 40.8 iS 08 09.9 COMP	iP 22 07 28.1 e(S) 07 50.7 COMP	iP 22 07 31.6 iS 07 55.6 DILAT	eP 22 08 19.3 iS 09 17.0	P 22 08 11.5 (S) 09 01.0
		iP 23 11 47.0 i 11 51.9 i(S) 11 53.1 DILAT	eP 23 11 54.2 iS 12 05.3 COMP	e(P) 23 11 57.1 iS 12 11.2		e(P) 23 12 08.6 e 12 11.2 e(S) 12 29.1		
		iP 23 15 53.1 i 58.1 i(S) 59.3 DILAT	eP 23 16 00.6 iS 16 11.5 (DILAT)	eP 23 16 03.0 iS 16 17.3		e(P) 23 16 16.7 iS 16 37.7 COMP		
523	18/10	eP 01 07 58.5 eS 08 21	iP 01 07 53.7 i(S) 08 13.7 DILAT	iP 01 07 48.3 iS 08 03.1 DILAT	e(P) 01 07 52.3 i(S) 08 12.1	iP 01 07 44.6 i(S) 07 56.0 i 07 58.2 COMP		
524		eP 02 00 40.0 eS 00 59.7	e(P) 02 00 41.9 e(S) 01 02.5	iP 02 00 33.3 iS 00 48.5 COMP		e(P) 02 00 36.3 iS 00 53.2		
525		eP 02 46 16.1 eS 46 53.2 (COMP)	eP 02 46 18.2 e(S) 46 57.6 e 46 58.6	iP 02 46 09.7 e 46 38.5 e(S) 46 41.9 COMP		eP 02 46 08.9 eS 46 41.2		
526		eP 04 03 43.7 eS 04 19.9	eP 04 03 45.7 i 03 46.2 eS 04 22.3 COMP	eP 04 03 37.2 eS 04 08.8 i 04 09.7 (DILAT)	e(P) 04 03 47.7 e 04 22.3 iS 04 26.8	e(P) 04 03 36.7 e 04 03.5 e(S) 04 08.7		
527			e(P) 04 07 48.6 e(S) 08 05.9	e(P) 04 07 45.1 e(S) 08 00.9	e(P) 04 07 44.6 e(S) 07 59.5	iP 04 07 39.6 iS 07 50.3 (COMP)		

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
	18/10	eP 06 57 31.1 eS 57 44.4	e(P) 06 57 48.2 eS 58 15.0	e(P) 06 57 44.5 e(S) 58 08.9		e(P) 06 57 59.0 eS 58 34.3 i 58 36.0		
			eP 08 20 01.6 e(S) 20 43.6	e(P) 08 19 58.2 e(S) 20 37.9	e(P) 08 19 52.0 e(S) 20 27.0	e(P) 08 19 53.7 i(S) 20 23.4		P 08 20 20.9
			COMP					
528		iP 10 42 44.5 eS 43 25.1	iP 10 42 42.7 iS 43 24.5	iP 10 42 35.7 iS 43 11.3	iP 10 42 39.5 iS 43 17.7	iP 10 42 31.2 iS 43 03.5		
			DILAT	COMP	DILAT	COMP		
			e(P) 10 58 23.0 eS 58 45.0 i 58 46.0	eP 10 59 20.6 eS 59 43.3	iP 10 58 17.0 iS 58 32.8	iP 10 59 10.8 iS 59 26.5		
					DILAT	COMP		
		eP 12 51 02.2	eP 12 51 04.6		eP 12 51 06.9 i 51 10.7	eP 12 51 06.3 i 51 09.7	iP 12 51 11.0 i 53 41.9 i 13 00 55.9	
			(DILAT)					
529		iP 16 09 22.7 iS 09 27.1	iP 16 09 33.8 e 09 45.2 eS 09 46.8	iP 16 09 32.0 eS 09 43.5		eP 16 09 45.6 i 10 07.1 iS 10 07.8		
		COMP	DILAT	DILAT		COMP		
530		eP 20 58 22.9 eS 59 11.0	iP 20 58 14.3 iS 58 56.2	iP 20 58 13.3 iS 58 56.0		eP 20 58 03.1 eS 58 38.3 i 58 40.2	iP 20 58 37.2 iS 59 38.5	iP 20 58 18.5 S 59 07
		COMP	(DILAT)	(DILAT)		(COMP)		
531	19/10	eP 02 15 40.8 e(S) 16 14.0	iP 02 15 31.8 iS 15 57.6	eP 02 15 29.7 i 15 30.3 iS 15 55.9	iP 02 15 20.6 iS 15 39.2	iP 02 15 20.5 iS 15 39.0		
			DILAT		(DILAT)	COMP		
		eP 11 25 35.5 iS 25 41.5	iP 11 25 34.9 i 25 41.5 i(S) 25 53.4		e(P) 11 25 53.3 i(S) 26 16.5	eP 11 25 50.6 iS 26 11.3		
		COMP	COMP			COMP		

MES DE OCTUBRE AÑO 1964 HOJA DE DATOS N° 8

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
	19/10	eP 13 06 23.5	iP 13 06 08.5 i(S) 06 27.9 i(S) 06 28.7		iP 13(05 54.0) i(S) (06 01.1) i (06 13.1)	eP 13 06 49.2 i(S) 07 32.3		iP 13 07 00 S 08 07
			DILAT		DILAT	COMP		
			e(P) 19 57 14.4 iS 57 59.4	e(P) 19 57 19.1 i(S) 58 06.7	e(P) 19 57 00.3 i(S) 57 30.4	e(P) 19 57 15.1	iP 19 57 05.7 iS 42.2	P 19 56 57.5 S 57 30
532	20/10		e(P) 04 21 53.3 eS 22 18.1	iP 04 21 51.4 eS 22 15.2	eP 04 21 43.6 i 22 01.1 i(S) 01.6	iP 04 21 42.0 eS 21 58.9		
			(DILAT)		DILAT	COMP		
533		eP 05 15 28.5 eS 15 45.5	e(P) 05 15 28.3 iS 15 44.8	iP 05 15 21.0 iS 15 32.6	iP 05 15 34.0 i 15 56.2 i 15 57.4 i(S) 15 57.7	eP 05 15 24.7 iS 15 39.0		
		COMP		COMP	DILAT			
		eP 14 14 41.0 eS 15 03	e(P) 14 14 36.8 iS 14 55.2		eP 14 14 33.2 iS 14 51.4	iP 14 14 24.4 i(S) 14 34.8 i 14 36.6		
					DILAT	COMP		
			iP 19 39 45.0 iS 40 35.8	eP 19 39 44.8 e(S) 40 37.2		eP 19 39 34.8 iS 21.6	iP 19 39 46.2 iS 40 40.0	iP 19 39 28.0 S 58.0
			DILAT					
534			iP 21 47 48.6 i(S) 48 08.8	eP 21 47 43.2 iS 49 59.1	i(P) 21 47 45.7 i(S) 48 02.6	iP 21 47 37.2 iS 47 48.7		
			COMP			COMP		
	21/10	iP 02 05 30.2	iP 02 05 44.2 i(S) 05 53.3	iP 02 05 41.5 i(S) 05 48.0		eP 02 05 53.4 i(S) 06 11.9		eP 02 07 29.0
		COMP	COMP					
535		eP 05 10 22.5 eS 11 00.6	iP 05 10 23.7 eS 11 01.6	iP 05 09 15.9 eS 09 49.0	eP 05 10 24.7 eS 11 03.1	i(P) 05 10 15.0 e(S) 10 46.2		
			COMP	(DILAT)				

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
536	21/10		iP 13 08 17.0 iS 08 39.1	e(P) 13 08 15.2 e(S) 08 36.4	eP 13 08 07.3 iS 08 24.0	eP 13 08 06.0 iS 08 21.3		
			COMP			COMP		
		iP 18 25 02.7 eS 25 50.4	iP 18 24 53.4 e(S) 25 21.6 e(S) 25 35.6			eP 18 24 42.8 i 24 43.2 eS 25 18.8 i 25 19.5	iP 18 25 14.7 iS 26 15.0	iP 18 24 56.3 S 25 42.0
		COMP	DILAT					
537	22/10	eP 03 03 27.7 iS 03 56.4	iP 03 03 31.7 i 04 01.4 i 04 02.8 i(S) 04 04.5	iP 03 03 28.3 iS 03 48.0		eP 03 03 26.1 iS 03 54.6		
		COMP	DILAT	DILAT		DILAT		
538		e(P) 03 56 13.8 i 56 29.3 eS 56 34.8	iP 03 56 01.6 i(S) 56 13.0	eP 03 56 04.5 e(S) 56 18.7		iP 03 56 02.0 i(S) 56 13.4		
			DILAT			COMP		
		iP 10 05 32.3 e(S) 06 01.1	iP 10 05 21.4 i(S) 05 41.7	e(P) 10 05 32.7 eS 06 02.4		iP 10 05 33.2 iS 06 03.7	iP 10 06 03.9 iS 06 55.9	
		COMP	DILAT			(DILAT)		
539		eP 14 01 53.2 e(S) 02 18	iP 14 01 44.2 iS 02 05.0	eP 14 01 41.8 eS 02 01.8		eP 14 01 33.8 iS 01 46.8		
			DILAT					
540		eP 14 27 08.6 eS 27 48.9	eP 14 27 09.3 iS 27 49.9	iP 14 27 01.9 iS 27 37.7		eP 14 26 59.9 eS 27 33.8 i 27 35.0		
		COMP	COMP	COMP				
541		eP 15 24 14.5 i 15.1 e 24 53.8 iS 53.9	eP 15 24 04.4 iS 24 39.6	eP 15 24 04.8 iS 24 41.0		iP 15 23 55.0 iS 24 24.4	iP 15 24 30.6 iS 25 26.0	
			(DILAT)			COMP		
542		eP 19 42 27.5 eS 43 03.1 i 03.9	iP 19 42 30.2 iS 43 07.8	iP 19 42 22.1 iS 42 44.4?		iP 19 42 22.7 iS 42 55.4		
		(DILAT)	COMP	COMP		DILAT		

MES DE OCTUBRE AÑO 1964 HOJA DE DATOS N° 10

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
543	23/10	eP 18 59 23.3 eS 59 43.6	iP 18 59 18.7 iS 59 35.6	iP 18 59 12.9 iS 59 26.2		iP 18 59 12.7 iS 59 23.9		
			DILAT	DILAT		DILAT		
544		eP 20 11 26.6 eS 11 49.1	eP 20 11 20.2 iS 11 40.1	iP 20 11 15.2 iS 11 31.8		iP 20 11 09.8 iS 11 22.2		
			DILAT	DILAT		DILAT		
545		eP 21 27 07.3 eS 27 44.7	e(P) 21 27 09.4 e(S) 27 48.5	e(P) 21 27 00.5 e(S) 27 34.0		eP 21 27 00.0 eS 27 32.7		
546	24/10	eP 03 01 06.0 eS 01 25.2	eP 03 00 58.3 iS 01 23.3	iP 03 00 54.6 iS 01 06.3		iP 03 00 52.8 iS 01 02.7		
				DILAT		(COMP)		
547		eP 06 27 49.8 eS 28 27.4 i 29 28.4	e(P) 06 27 50.4 e(S) 28 30.0	eP 06 27 43.2 eS 28 17.0		e(P) 06 27 42.2 e(S) 28 16.2		
		eP 06 56 42.7 i 56 48.1 eS 58 04.7	e(P) 06 56 39.4 i 56 43.6 iS 57 58.9	eP 06 56 35.3 i 56 39.3 e 57 43.2 iS 57 51.0		eP 06 56 29.7 i 56 30.6 e(S) 57 38.6	iP 06 57 12.1 iS 58 57.3	P 06 56 49.0 S 58 15
548		eP 07 15 15 eS 15 59.7	iP 07 15 05.4 iS 15 43.2	e(P) 07 15 05.0 e(S) 15 42.4		e(P) 07 14 54.7 e(S) 15 25.5	eiP 07 15 35.9 iS 16 39.9	
			COMP					
549		e(P) 09 03 16.1 e 03 38.0 eS 03 41.0	iP 09 03 07.6 iS 03 28.0	iP 09 03 03.9 iS 03 21.2		iP 09 02 56.3 iS 03 08.2		
			COMP	DILAT		DILAT		
		eP 22 20 34.8 iS 20 47	eP 22 20 48.5 i 20 51.0 i(S) 21 02.5	eP 22 20 45.1 i(S) 20 57.2		e(P) 22 20 57.4 i 20 59.3 i(S) 21 12.1	eP 22 22 14.0 eS 23 44.0	eP 22 23 30
			COMP			(DILAT)		

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
	24/10		eP 22 50 57.4 eS 51 49.7	e(P) 22 50 56.7		eP 22 50 48.6 e(S) 51 34.8 i 51 36.3	iP 22 51 02.0 iS 51 59.0	eP 22 50 37
	26/10	eP 03 05 50		iP 03 05 37.7 iS 06 01.0		iP 03 05 28.2 iS 05 44.1		eP 03 06 43
				COMP		DILAT		
550		eP 15 10 52.4 eS 11 58.4 e 12 00.0		iP 15 10 43.4 e(S) 11 42.8 i 11 46.7		iP 15 10 33.8 eS 11 30.2 i 11 31.4	iP 15 10 30.8 iS 11 25.0	iP 15 10 04
				DILAT		DILAT		
551	27/10	iP 06 13 38.0 iS 14 10.8		iP 06 13 36.6 iS 14 09.7		iP 06 13 37.3 i(S) 14 12.0		P 06 14 14.6 L 06 16.4
		DILAT		COMP		COMP		
		eP 07 19 13.6 eS 19 36.3		iP 07 19 02.8 eS 19 18.5		iP 07 18 58.8 i(S) 19 13.0 i(S) 19 20.6		eP 07 20 35
		COMP		DILAT		COMP		
552	28/10	e(P) 00 23 33.1 i(S) 24 37	e(P) 00 23 46.1 i 23 59.3 iS 25 00.8	eP 00 23 43.7		e(P) 00 23 54.7 i 24 04.9	eiP 00 25 15.1 iS 27 33.0	P 00 25 22
		iP 03 55 04.8 iS 55 40.8	iP 03 55 07.3 iS 55 44.8	iP 03 55 06.0 i(S) 55 43.7		iP 03 55 00.2 iS 55 32.4	eP 03 56 19.3 iS 57 54.0	iP 03 56 09.5
		DILAT	COMP	COMP		COMP		
		e(P) 20 50 25.5 eS 51 06.1	eP 20 50 13.3 e(S) 50 40.0 i 50 45.3	eP 20 50 14.2 i 50 41.1 iS 44.7		iP 20 50 03.9 iS 50 24.5		
			(COMP)			COMP		
553		iP 22 46 11.1 eS 46 49.4	iP 22 46 12.0 eS 46 51.1 i 46 52.5	iP 22 46 04.7 iS 46 39.0		e(P) 22 46 03.0 i 46 03.9 e(S) 46 35.6		
		COMP	(DILAT)	COMP				

MES DE OCTUBRE AÑO 1964 HOJA DE DATOS N° 12

N° orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	AREQUIPA	LA PAZ
554	29/10	eP 03 15 00.4 e(S) 15 26	iP 03 14 52.4 iS 15 14.0	iP 03 14 49.9 iS 15 09.5	iP 03 14 45.8 iS 15 02.7	iP 03 14 41.9 iS 14 55.2		
			DILAT	DILAT	DILAT	DILAT		
555		eP 07 38 50.7 eS 38 57.8	iP 07 38 50.4 iS 38 57.4	eP 07 38 15.4 eS 39 35.7		e(P)07 39 04.8 i 39 05.6 iS 39 23.1		
		DILAT	(DILAT)					
556		iP 10 04 50.3 eS 05 30.8	eP 10 04 50.7 eS 05 31.1	eP 10 04 42.9 iS 05 18.1	iP 10 04 48.4 iS 05 27.4	eP 10 04 39.9 e(S) 05 09.0		
		COMP			DILAT			
557		iP 19 06 50.3 iS 07 32.3	iP 19 07 49.7 iS 08 32.7	iP 19 06 41.8 iS 07 16.5	iP 19 06 45.8 i(S) 07 26.3	S-P=32.2	iP 19 07 47.2 iS 09 15.0	P 19 07 35
		COMP	DILAT	COMP	DILAT			
558	30/10	eP 00 41 57 e(S) 42 30.0	eP 00 41 41.2 i 41 43.1 i(S) 42 02.7	eP 00 41 44.4 i 41 46.7 e(S) 42 09.8	iP 00 41 27.9 eS 41 41.6	S-P=19.0	eP 00 42 35.5 eS 43 43.0	P 00 42 24
			COMP	COMP	COMP	DILAT		
		iP 01 48 26.3 iS 48 45.7	iP 01 48 23.9 iS 48 43.3	iP 01 48 17.4 SAT	iP 01 48 29.8 i(S) 48 41.2 i(S) 48 55.3		eP 01 49 40.1 eS 50 59.0	eP 01 49 38
		COMP	DILAT	(DILAT)	DILAT	COMP		
		e(P)09 27 32 eS 27 58.5	e(P) 09 27 20.2 iS 27 42.7		iP 09 27 07.0 iS 27 22.5	eP 09 27 14.0 eS 27 34.2	eP 09 28 02.9 eS 28 58.9	
			(COMP)			DILAT		
559		eP 14 56 08.6	iP 14 55 55.0 iS 56 00.6		iP 14 56 06.4 iS 56 19.6	e(P)14 56 03.7 e(S) 56 14.2		
			DILAT		DILAT			
560		eP 16 11 52 eS 12 26	e(P) 16 11 36.6 i 11 38.7 iS 11 59.7		iP 16 11 23.0 iS 11 35.9	eP 16 11 29.4 iS 11 47.4		
					COMP			

INTERNATIONAL SEISMOLOGICAL
SUMMARY
KEW OBSERVATORY
RICHMOND SURREY ENGLAND



IMPRESO AEREO

DETERMINACION PROVISORIA DE EPICENTROS. RED ANDES
PROGRAMA SISMOLOGICO. UNIVERSIDAD DE CHILE - ANTOFAGASTA

BOLETIN N° 17 - OCTUBRE DE 1964

Las coordenadas de las estaciones de la Red son:

ANT	ANTOFAGASTA	23° 42' 18" S	70° 24' 55" W	80 m
MIC	MICHILLA	22° 42' 23" S	70° 16' 01" W	100 m
SLN	SALINAS	23° 09' 14" S	69° 36' 40" W	1.350 m
QUL	QUILLAGUA	21° 39' 20" S	69° 31' 42" W	800 m
CAC	CALAMA	22° 28' 47" S	69° 01' 34" W	2.000 m
TCN	TOCONCE	22° 16.5' S	68° 10.3' W	3.300 m
LPB	LA PAZ	16° 31' 57.6"S	68° 05' 54.1"W	3.292 m

La estación de Toconce empezó a funcionar en 1965 y la de Ollagüe, en 1966.

Como chequeo del valor y la correspondencia de los tiempos se utiliza los gráficos S-P vs. P y/o S-P vs. S. La determinación de los hipocentros se ha hecho con el computador mecánico analógico al cual se le introducen las velocidades "medias" calculadas de las Tablas Jeffreys-Bullen (1958); en lo fundamental, se aprovecha la diferencia S-P comprobando y ajustando con los datos P.

En general, el error de las diferencias S-P es del orden de los $\pm 0,2$ seg; el de los tiempos de llegada a la estación Antofagasta, de $\pm 0,2$ seg, y el de los tiempos de llegada a las restantes estaciones, de $\pm 0,5$ seg. Todo lo anterior, según la apariencia general de los gráficos de corrección de hora e implicando buena definición de las fases.

La numeración (N° de orden) es correlativa a partir del Boletín N° 1.

El error de la hora origen se obtiene calculando la desviación standard con respecto a la hora origen, a su vez valor promedio compensado según los datos de los tiempos de llegada de P.

El error de las coordenadas es estimativo, tomando en cuenta la calidad de la solución.

Se menciona las estaciones usadas en el cálculo por medio de las iniciales de cada una de ellas.

El paréntesis indica dato dudoso.

Se agrega los datos de las tarjetas "PRELIMINARY DETERMINATION OF EPICENTERS" de la USCGS para sismos con suficiente información de la Red; además, los tiempos registrados en Arequipa y La Paz que también se usan en los cálculos aunque, para sismos en la zona misma de la Red y al sur de ella, presentan desviaciones sistemáticas por lo que, en estos casos, no se les da peso.

-2-

Estamos recibiendo regularmente boletines de Zonda y La Paz,
lo que agradecemos.

OBSERVACIONES AL BOLETIN N° 17

El sismo del 24/10 registrado a las 06:56 en la Red tiene pro-
fundidad de 500-600 km y ocurrió en territorio argentino.

El sismo 565 del 31/10 es seguramente una explosión de la mina
de Mantos Blancos.

Antofagasta, Agosto de 1966

N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
	2/10	eP 01 02 02.8 e(S) 02 35.0	S-P=25.7	eP 01 01 55.6 eS 02 28.3 S-P=32.7		eP 01 01 48.5 i(S) 02 15.0		
498	2/10	iP 16 52 55.5 iS 53 22.2	iP 16 52 48.1 SAT	iP 16 52 45.1 i(S) 53 07.7		iP 16 52 36.2		P 16 53 35 (S) 54 38 (S-P)=63
		COMP	DILAT	DILAT		DILAT		
499	2/10	eP 18 13 05.5 iS 13 25.8 S-P=20.3	eP 18 13 13.2 i 13 14.6 e(S) 13 37.5 i 39.8	iP 18 13 03.4 e(S) 13 20.7 i 23.0		e(P) 18 13 09.8 i 13 10.9 eS 13 33.5 i 35.6		
				DILAT				
500	3/10	eP 04 58 10.7 eS 58 46.6 S-P=35.9	iP 04 58 14.2 iS 58 50.9	e(P) 04 58 04.6 iS 58 36.5 S-P=31.9		i(P) 04 58 05.9 iS 58 36.3		
			DILAT	COMP				
501	3/10	eP 09 16 47.4 eS 17 36.8	iP 09 16 43.6 eS 17 23.6 i 17 30.1	iP 09 16 37.2 eS 17 08.4 i 17 19.7		eP 09 16 31.2 iS 17 09.7		
			COMP	DILAT				
	3/10	e(P) 10 55 02	eP 10 54 50.1 i 54 52.8 e(S) 55 17.4 i 21.0	eP 10 54 49.7 i 51.6 iS 55 20.6		eP 10 54 41.4 i 54 42.0 iS 55 05.5 i 06.6	eP 10 55 27.0 eS 56 21.3	eP 10 55 16
				DILAT		COMP		
502	3/10	e(P) 23 30 30.4 e 30 42.4 iS 30 46.0	eP 23 30 45.4 e(S) 30 58.7 e 31 13.1	eP 23 30 39.6 i(S) 31 02.7		e(P) 23 30 53.3 e(S) 31 24.8		
				COMP				
503	4/10	eP 06 59 50.4 iS 07 00 03.2	iP 06 59 39.9 i(S) 59 44.4 i 59 45.2	e(P) 06 59 46.1 i 59 46.8 eS 59 56.5 i 57.7		eP 06 59 54.5 iS 07 00 10.5		
			DILAT	COMP		COMP		
504	4/10	iP 07 24 58.4 iS 25 06.8	eP 07 25 10.7 iS 25 28.1	iP 07 25 10.1 iS 25 27.4		eP 07 25 22.8 e(S) 25 49.2		
		DILAT		DILAT				

N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CAJAMA CAC	AREQUIPA ARE	LPB
505	4/10	eP 10 29 32 e(S) 30 44	eP 10 29 19.1 e 30 16.5 eS 30 21.6 i 23.9	eP 10 29 25.3 eS 30 32.9 i 30 38.0		eP 10 29 18.2 eS 30 19.0	iP 10 28 33.1 iS 29 01.3	iP 10 28 29.1 S 28 53.0
				DILAT				
	5/10	iP 20 18 18.6 iS 18 32.4	S-P=17.0	iP 20 18 18.1 i(S) 18 32.6		iP 20 18 27.9 iS 18 49.7		
		COMP	DILAT	COMP		DILAT		
506	6/10	eP 01 58 20.1 eS 58 46	S-P=16.1	eP 01 58 15.9 i 58 16.5 e 58 37.4 iS 58 38.7		e(P) 01 58 15.0 e 58 29.3 iS 58 37.0	P 01 58 58.8 (S) 59 52.9	
		COMP	DILAT	DILAT				
		e(P) 02 10 19.9 e(S) 10 42.3	S-P=19.1	iP 02 10 09.1 iS 10 25.3		iP 02 10 02.7 iS 10 13.5		
			DILAT	COMP		COMP		
507	6/10	eP 04 12 57.8 e(S) 13 57	(S-P)=65.8	iP 04 12 59.6 e(S) 13 59.6		e(P) 04 13 14.8 e(S) 14 19.8	P 04 13 05.8 S 14 09.6	
			DILAT	DILAT				
508	6/10	eP 2 44 47.6 eS 45 22	S-P=37.7	iP 23 44 41.5 iS 45 13.0	S-P=38.5	eP 23 44 42.0 eS 45 13.8		
				COMP	DILAT			
	7/10	e(P) 10 52 01.2 S-P=21	S-P=16.1	iP 10 51 48.6 iS 52 01.3	S-P=16.0	iP 10 51 46.1 iS 51 56.8		
			DILAT	DILAT		COMP		
		eP 13 04 15.9 eS 04 54.8	S-P=41.2		S-P=39.0	iP 13 04 07.4 eS 04 40.5		
			DILAT		COMP			
509	8/10	iP 14 38 25.7 iS 38 39.0	S-P=10.4			iP 14 38 23.6 i(S) 38 34.8 i 38 43.4	iP 14 39 37.0 iS 40 47.2	eP 14 39 43 Pg 40 03.5 S 41 04
		COMP				DILAT		
510	8/10	eP 17 08 38 i 08 44.9 e(S) 10 00.0 i 10 14.7	e(P) 17 08 43.7 i 09 00.1 i(S) 10 45.1 i 11 07.6			e(P) 17 07 33.8 e 07 44.6 i 57.2 e(S) 08 58.0	e(P) 17 10 17.0 i(S) 13 45.0	eP 17 10 15 S 13 30 L (17.3)

N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
	11/10	eP 03 53 17 e(S) 53 42	iP 03 53 06.8 iS 53 28.8		S-P=15.7	eP 03 52 56.0 iS 53 09.5		
					DILAT			
511	11/10	eP 07 25 20.8 eS 25 40.4	eP 07 25 13.1 iS 25 28.1		S-P=16.2	iP 07 25 06.0 iS 25 15.8		
						COMP		
512	11/10	eP 07 27 31.8 eS 27 51	eP 07 27 24.2 iS 27 39.1		S-P=17.5	eP 07 27 20.5 i(S) 27 30.8		
	11/10	iP 08 55 01.4 iS 13.7	iP 08 54 52.0		S-P=21.5	iP 08 55 04.8 eS 57 26.2	eP 08 56 17.8 eS 57 26.2	eP 08 56 35.0
		COMP	DILAT			COMP		
513	11/10	eP 14 20 36.6 i(S) 21 40.4	iP 14 20 23.6			eP 14 20 29.0 i 20 31.2 i 40.1 i(S) 21 29.4 i 21 32.0		iP 14 20 12.7 Pg 20 22.0 iS 21 12
			DILAT		DILAT			
		iP 17 22 00.2 eS 22 23.2	eP 17 21 55.0 iS 22 17.4		S-P=21.8	iP 17 21 47.6 iS 22 03.2		
		DILAT				DILAT		
		iP 19 22 49.2 iS 23 27.7	eP 19 22 50.2 iS 23 30.0		S-P=35.5	e(P) 19 22 41.1 i 41.9 iS 23 15.7		
			COMP			COMP		
	12/10	iP 01 09 55.3 eS 19 43	iP 01 09 48.4 iS 10 30.0		iP 01 09 41.0 iS 10 16.4	e(P) 01 09 37.1 e(S) 10 10.8		
			COMP					
	12/10	iP 04 42 21.0 eS 43 00.0	iP 04 42 20.5 e(S) 43 01.8		iP 04 42 24.1 e(S) 43 05.1	iP 04 42 13.3 e(S) 42 47.8		
					DILAT	(COMP)		
514	12/10	iP 07 04 05.1 eS 04 45	iP 07 03 57.9 iS 04 32.4		iP 07 03 51.6 iS 04 20.9	eP 07 03 46.5 iS 04 14.4	eP 07 04 44.6 eS 06 00.0	P 07 04 30.5 S 05 33
		DILAT	DILAT		DILAT			



N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QWL	CALAMA CAC	AREQUIPA ARE	LPB
	12/10	eP 09 53 33 eS 54 36.7	iP 09 53 23.7 i(S) 54 05.0		iP 09 53 12.0 i(S) 53 49.1	iP 09 53 24.8 e(S) 54 07.6	iP 09 52 59.8 iS 53 27.9	iP 09 53 02.2 iS 32.8
					DILAT	COMP		
515	14/10	e(P) 01 06 03.5 i 05.0 e(S) 06 27.3	iP 01 05 55.2 iS 06 16.6		iP 01 05 51.2 i(S) 06 09.0	iP 01 05 45.0 i 56.9 i(S) 05 57.6		
			DILAT		COMP	COMP		
	14/10	e(P) 04 21 36.5 i 21 37.8 iS 21 58.8	iP 04 21 30.2 i(S) 50.2		iP 04 21 29.7 i(S) 50.0			eP 04 22 39
			DILAT		DILAT			
	14/10	eP 07 07 34.2 eS 08 09.8	e(P) 07 07 36.0		iP 07 07 12.7 e(S) 31.0	eP 07 07 22.5 eS 07 47.6		
			(COMP)					
516	14/10	eP 09 41 00.9 eS 41 22.7	e(P) 09 41 01.8 eS 41 23.7 i 26.6		e(P) 09 41 07.4 e(S) 41 34.4	e(P) 09 40 53.9 iS 41 12.3		
			(COMP)					
	14/10	eP 19 30 01 e(S) 30 26.5	eP 19 29 48.5 iS 30 11.4		iP 19 29 35.2	eP 19 29 41.4 iS 30 01.2		
			COMP		COMP	DILAT		
517	15/10	iP 01 07 10.0 eS 07 45.0 07 46.0	iP 01 07 12.5 iS 07 49.6	iP 01 07 04.7 iS 07 36.9	iP 01 07 16.2 iS 07 55.0	eP 01 07 04.7 iS 07 36.7		
		COMP	DILAT	DILAT	DILAT	DILAT		
518	15/10	eP 13 09 10.0 eS 09 46.1	e(P) 13 09 11.2 e(S) 09 49.2	iP 13 09 03.7 iS 09 36.6	iP 13 09 14.1 i(S) 09 53.0			
				COMP	DILAT			
	15/10	eP 17 34 17.2 e(S) 34 44.5	eP 17 34 07.7 i(S) 34 31.0	iP 17 34 06.9 iS 34 28.6	iP 17 33 59.9 i(S) 34 15.0	iP 17 33 58.7 iS 34 10.8		
			DILAT	DILAT	COMP	DILAT		
	15/10		iP 21 21 34.6 iS 21 44.5	eP 21 21 06.3 i(S) 21 31.5	eP 21 21 47.8 iS 22 06.9	eP 21 21 40.9 iS 21 53.0		
			COMP	(COMP)				

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N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
519	16/10		eP 04 05 17.0 iS 05 33.3	eP 04 05 11.1 iS 05 19.8 iS 05 22.6	e(P) 04 05 24.8 e(S) 05 46.0	iP 04 05 14.1 i(S) 05 26.9		
				DILAT				
520	16/10	eP 07 43 18.5 e(S) 43 42.1	eP 07 43 10.1 i(S) 43 29.2	iP 07 43 08.4 iS 43 25.4	iP 07 43 07.1 iS 43 22.6	eP 07 43 01.0 iS 43 11.5		eP 07 41 07
			DILAT		(DILAT)			
521	16/10		e(P) 08 19 44.2 i(S) 20 09.0	e(P) 08 19 48.0 e(S) 20 15.0	iP 08 19 31.9 iS 19 46.9	eP 08 19 38.5 iS 20 58.6		P 08 20 34.7
					DILAT			
	16/10	eP 10 19 10.1 e(S) 19 31.1	iP 10 18 57.6 i(S) 19 12.3 i 19 12.8	S-P=18.6	iP 10 18 50.9 i(S) 18 58.9 i 19 04.9 i 19 12.3	eP 10 18 59.8 eS 19 15.3 i 19 16.6	iP 10 19 54.9 iS 20 52.4	P 10 19 59
			DILAT		DILAT			
	16/10	iP 18 52 48.4 iS 52 56.6	e(P) 18 53 00.8 iS 53 18.5	S-P=18.7	e(P) 18 53 09.4 iS 53 49.5	e(P) 18 53 14.4 i(S) 53 31.9		
			COMP					
		eP 21 42 31 eS 43 00.8		(S-P)=26.5	iP 21 42 03.6 i(S) 42 19.2	iP 21 42 18.2 e(S) 42 36.6 i 42 38.5		
					DILAT	DILAT		
	17/10	eP 00 23 37.3 i 23 37.8 iS 24 20.1		(S-P)=37.3	eP 00 23 32.4 iS 24 11.6	e(P) 00 23 23.9 eS 24 01.4		
					COMP			
522	17/10	eP 01 09 19.0 e(S) 10 24			eP 01 09 44.4 i 10 29.3 i 11 09.1	eP 01 09 34.0		
		eP 02 15 38.9 eS 16 00.6		S-P=15.9	e(P) 02 15 44.1 e(S) 16 03.9	eP 02 15 29.3 eS 15 43.4 i 15 43.9		
				COMP				

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N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QWL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
	17/10			eP 18 58 17.2 eS 59 23.5	e(P) 18 57 59.0 e(S) 58 46.5	eP 18 58 09.7 e 58 10.0 e(S) 59 07.8	eP 18 57 33.3 eS 58 05.0	
	17/10	eP 22 07 51.1 eS 08 25.9 i 08 30.1	eP 22 07 40.7 iS 08 08.1 (COMP)	iP 22 07 40.8 iS 08 09.9 COMP	iP 22 07 28.1 e(S) 07 50.7 COMP	iP 22 07 31.6 iS 07 55.6 DILAT	eP 22 08 19.3 iS 09 17.0	P 22 08 11.5 (S) 09 01.0
	17/10	iP 23 11 47.0 i 11 51.9 i(S) 11 53.1 DILAT	eP 23 11 54.2 iS 12 05.3 COMP	e(P) 23 11 57.1 iS 12 11.2		e(P) 23 12 08.6 e 12 11.2 e(S) 12 29.1		
	17/10	iP 23 15 53.1 i 58.1 i(S) 59.3 DILAT	eP 23 16 00.6 iS 16 11.5 (DILAT)	eP 23 16 03.0 iS 16 17.3		e(P) 23 16 16.7 iS 16 37.7 COMP		
523	18/10	eP 01 07 58.5 eS 08 21	iP 01 07 53.7 i(S) 08 13.7 DILAT	iP 01 07 48.3 iS 08 03.1 DILAT	e(P) 01 07 52.3 i(S) 08 12.1	iP 01 07 44.6 i(S) 07 56.0 i 07 58.2 COMP		
524	18/10	eP 02 00 40.0 eS 00 59.7	e(P) 02 00 41.9 e(S) 01 02.5	iP 02 00 33.3 iS 00 48.5 COMP		e(P) 02 00 36.3 iS 00 53.2		
525	18/10	eP 02 46 16.1 eS 46 53.2 (COMP)	eP 02 46 18.2 e(S) 46 57.6 e 46 58.6	iP 02 46 09.7 e 46 38.5 e(S) 46 41.9 COMP		eP 02 46 08.9 eS 46 41.2		
526	18/10	eP 04 03 43.7 eS 04 19.9	eP 04 03 45.7 i 03 46.2 eS 04 22.3 COMP	eP 04 03 37.2 eS 04 08.8 i 04 09.7 (DILAT)	e(P) 04 03 47.7 e 04 22.3 iS 04 26.8	e(P) 04 03 36.7 e 04 03.5 e(S) 04 08.7		
527	18/10		e(P) 04 07 48.6 e(S) 08 05.9	e(P) 04 07 45.1 e(S) 08 00.9	e(P) 04 07 44.6 e(S) 07 59.5	iP 04 07 39.6 iS 07 50.3 (COMP)		

N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
	18/10	eP 06 57 31.1 eS 57 44.4	e(P) 06 57 48.2 eS 58 15.0	e(P) 06 57 44.5 e(S) 58 08.9		e(P) 06 57 59.0 eS 58 34.3 i 58 36.0		
	18/10		eP 08 20 01.6 e(S) 20 43.6	e(P) 08 19 58.2 e(S) 20 37.9	e(P) 08 19 52.0 e(S) 20 27.0	e(P) 08 19 53.7 i(S) 20 23.4		P 08 20 20.9
			COMP					
528	18/10	iP 10 42 44.5 eS 43 25.1	iP 10 42 42.7 iS 43 24.5	iP 10 42 35.7 iS 43 11.3	iP 10 42 39.5 iS 43 17.7	iP 10 42 31.2 iS 43 03.5		
			DILAT	COMP	DILAT	COMP		
	18/10		e(P) 10 58 23.0 eS 58 45.0 i 58 46.0	eP 10 58 20.6 eS 58 43.3	iP 10 58 17.0 iS 58 32.8	iP 10 58 10.8 iS 58 26.5		
					DILAT	COMP		
		eP 12 51 02.2	eP 12 51 04.6		eP 12 51 06.9 i 51 10.7	eP 12 51 06.3 i 51 09.7	iP 12 51 11.0 i 53 41.9 i 13 00 55.9	
			(DILAT)					
529	18/10	iP 16 09 22.7 iS 09 27.1	iP 16 09 33.8 e 09 45.2 eS 09 46.8	iP 16 09 32.0 eS 09 43.5		eP 16 09 45.6 i 10 07.1 iS 10 07.8		
		COMP	DILAT	DILAT		COMP		
530	18/10	eP 20 58 22.9 eS 59 11.0	iP 20 58 14.3 iS 58 56.2	iP 20 58 13.3 iS 58 56.0		eP 20 58 03.1 eS 58 38.3 i 58 40.2	iP 20 58 37.2 iS 59 38.5	iP 20 58 18.5 S 59 07
		COMP	(DILAT)	(DILAT)		(COMP)		
531	19/10	eP 02 15 40.8 e(S) 16 14.0	iP 02 15 31.8 iS 15 57.6	eP 02 15 29.7 i 15 30.3 iS 15 55.9	iP 02 15 20.6 iS 15 39.2	iP 02 15 20.5 iS 15 39.0		
			DILAT		(DILAT)	COMP		
	19/10	eP 11 25 35.5 iS 25 41.5	iP 11 25 34.9 i 25 41.5 i(S) 25 53.4		e(P) 11 25 53.3 i(S) 26 16.5	eP 11 25 50.6 iS 26 11.3		
		COMP	COMP			COMP		

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N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
	19/10	eP 13 06 23.5	iP 13 06 08.5 i(S) 06 27.9 i(S) 06 28.7		iP 13(05 54.0) i(S) (06 01.1) i (06 13.1)	eP 13 06 49.2 i(S) 07 32.3		iP 13 07 00 S 08 07
			DILAT		DILAT	COMP		
	19/10		e(P) 19 57 14.4 iS 57 59.4	e(P) 19 57 19.1 i(S) 58 06.7	e(P) 19 57 00.3 i(S) 57 30.4	e(P) 19 57 15.1	iP 19 57 05.7 iS 42.2	P 19 56 57.5 S 57 30
532	20/10		e(P) 04 21 53.3 eS 22 18.1	iP 04 21 51.4 eS 22 15.2	eP 04 21 43.6 i 22 01.1 i(S) 22 01.6	iP 04 21 42.0 eS 21 58.9		
			(DILAT)		DILAT	COMP		
533	20/10	eP 05 15 28.5 eS 15 45.5	e(P) 05 15 28.3 iS 15 44.8	iP 05 15 21.0 iS 15 32.6	iP 05 15 34.0 i 15 56.2 i 15 57.4 i(S) 15 57.7	eP 05 15 24.7 iS 15 39.0		
		COMP		COMP	DILAT			
	20/10	eP 14 14 41.0 eS 15 03	e(P) 14 14 36.8 iS 14 55.2		eP 14 14 33.2 iS 14 51.4	iP 14 14 24.4 i(S) 14 34.8 i 14 36.6		
					DILAT	COMP		
	20/10		iP 19 39 45.0 iS 40 35.8	eP 19 39 44.8 e(S) 40 37.2		eP 19 39 34.8 iS 40 21.6	iP 19 39 46.2 iS 40 40.0	iP 19 39 28.0 S 58.0
			DILAT					
534	20/10		iP 21 47 48.6 i(S) 48 08.8	eP 21 47 43.2 iS 49 59.1	i(P) 21 47 45.7 i(S) 48 02.6	iP 21 47 37.2 iS 47 48.7		
			COMP			COMP		
	21/10	iP 02 05 30.2	iP 02 05 44.2 i(S) 05 53.3	iP 02 05 41.5 i(S) 05 48.0		eP 02 05 53.4 i(S) 06 11.9		eP 02 07 29.9
		COMP	COMP					
535	21/10	eP 05 10 22.5 eS 11 00.6	iP 05 10 23.7 eS 11 01.6	iP 05 09 15.9 eS 09 49.0	eP 05 10 24.7 eS 11 03.1	i(P) 05 10 15.0 e(S) 10 46.2		
			COMP	(DILAT)				

N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
536	21/10		iP 13 08 17.0 iS 08 39.1	e(P) 13 08 15.2 e(S) 08 36.4	eP 13 08 07.3 iS 08 24.0	eP 13 08 06.0 iS 08 21.3		
			COMP			COMP		
	21/10	iP 18 25 02.7 eS 25 50.4	iP 18 24 53.4 e(S) 25 21.6 e(S) 25 35.6			eP 18 24 42.8 i 24 43.2 eS 25 18.8 i 25 19.5	iP 18 25 14.7 iS 26 15.0	iP 18 24 56.3 S 25 42.0
		COMP	DILAT					
537	22/10	eP 03 03 27.7 iS 03 56.4	iP 03 03 31.7 i 04 01.4 i 04 02.8 i(S) 04 04.5	iP 03 03 28.3 iS 03 48.0		eP 03 03 26.1 iS 03 54.6		
		COMP	DILAT	DILAT		DILAT		
538	22/10	e(P) 03 56 13.8 i 56 29.3 eS 56 34.8	iP 03 56 01.6 i(S) 56 13.0	eP 03 56 04.5 e(S) 56 18.7		iP 03 56 02.0 i(S) 56 13.4		
			DILAT			COMP		
	22/10	iP 10 05 32.3 e(S) 06 01.1	iP 10 05 21.4 i(S) 05 41.7	e(P) 10 05 32.7 eS 06 02.4		iP 10 05 33.2 iS 06 03.7	iP 10 06 03.9 iS 06 55.9	
		COMP	DILAT			(DILAT)		
539	22/10	eP 14 01 53.2 e(S) 02 18	iP 14 01 44.2 iS 02 05.0	eP 14 01 41.8 eS 02 01.8		eP 14 01 33.8 iS 01 46.8		
			DILAT					
540	22/10	eP 14 27 08.6 eS 27 48.9	eP 14 27 09.3 iS 27 49.9	iP 14 27 01.9 iS 27 37.7		eP 14 26 59.9 eS 27 33.8 i 27 35.0		
		COMP	COMP	COMP				
541	22/10	eP 15 24 14.5 i 15.1 e 24 53.8 iS 53.9	eP 15 24 04.4 iS 24 39.6	eP 15 24 04.8 iS 24 41.0		iP 15 23 55.0 iS 24 24.4	iP 15 24 30.6 iS 25 26.0	
			(DILAT)			COMP		
542	22/10	eP 19 42 27.5 eS 43 03.1 i 03.9	iP 19 42 30.2 iS 43 07.8	iP 19 42 22.1 iS 42 44.4?		iP 19 42 22.7 iS 42 55.4		
		(DILAT)	COMP	COMP		DILAT		

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N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
543	23/10	eP 18 59 23.3 eS 59 43.6	iP 18 59 18.7 iS 59 35.6	iP 18 59 12.9 iS 59 26.2		iP 18 59 12.7 iS 59 23.9		
			DILAT	DILAT		DILAT		
544	23/10	eP 20 11 26.6 eS 11 49.1	eP 20 11 20.2 iS 11 40.1	iP 20 11 15.2 iS 11 31.8		iP 20 11 09.8 iS 11 22.2		
			DILAT	DILAT		DILAT		
545	23/10	eP 21 27 07.3 eS 27 44.7	e(P) 21 27 09.4 e(S) 27 48.5	e(P) 21 27 00.5 e(S) 27 34.0		eP 21 27 00.0 eS 27 32.7		
546	24/10	eP 03 01 06.0 eS 01 25.2	eP 03 00 58.3 iS 01 23.3	iP 03 00 54.6 iS 01 06.3		iP 03 00 52.8 iS 01 02.7		
				DILAT		(COMP)		
547	24/10	eP 06 27 49.8 eS 28 27.4 i 29 28.4	e(P) 06 27 50.4 e(S) 28 30.0	eP 06 27 43.2 eS 28 17.0		e(P) 06 27 42.2 e(S) 28 16.2		
	24/10	eP 06 56 42.7 i 56 48.1 eS 58 04.7	e(P) 06 56 39.4 i 56 43.6 iS 57 58.9	eP 06 56 35.3 i 56 39.3 e 57 43.2 iS 57 51.0		eP 06 56 29.7 i 56 30.6 e(S) 57 38.6	iP 06 57 12.1 iS 58 57.3	P 06 56 49.0 S 58 15
548	24/10	eP 07 15 15 eS 15 59.7	iP 07 15 05.4 iS 15 43.2	e(P) 07 15 05.0 e(S) 15 42.4		e(P) 07 14 54.7 e(S) 15 25.5	eiP 07 15 35.9 iS 16 39.9	
			COMP					
549	24/10	e(P) 09 03 16.1 e 03 38.0 eS 03 41.0	iP 09 03 07.6 iS 03 28.0	iP 09 03 03.9 iS 03 21.2		iP 09 02 56.3 iS 03 08.2		
			COMP	DILAT		DILAT		
	24/10	eP 22 20 34.8 iS 20 47	eP 22 20 48.5 i 20 51.0 i(S) 21 02.5	eP 22 20 45.1 i(S) 20 57.2		e(P) 22 20 57.4 i 20 59.3 i(S) 21 12.1	eP 22 22 14.0 eS 23 44.0	eP 22 23 30
			COMP			(DILAT)		

N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CAIAMA CAC	AREQUIPA ARE	LA PAZ LPB
	24/10		eP 22 50 57.4 eS 51 49.7	e(P) 22 50 56.7		eP 22 50 48.6 e(S) 51 34.8 i 51 36.3	iP 22 51 02.0 iS 51 59.0	eP 22 50 37
	26/10	eP 03 05 50		iP 03 05 37.7 iS 06 01.0		iP 03 05 28.2 iS 05 44.1		eP 03 06 43
				COMP		DILAT		
550	26/10	eP 15 10 52.4 eS 11 58.4 e 12 00.0		iP 15 10 43.4 e(S) 11 42.8 i 11 46.7		iP 15 10 33.8 eS 11 30.2 i 11 31.4	iP 15 10 30.8 iS 11 25.0	iP 15 10 04
				DILAT		DILAT		
551	27/10	iP 06 13 38.0 iS 14 10.8		iP 06 13 36.6 iS 14 09.7		iP 06 13 37.3 i(S) 14 12.0		P 06 14 14.6 L 06 16.4
				DILAT		COMP		
	27/10	eP 07 19 13.6 eS 19 36.3		iP 07 19 02.8 eS 19 18.5		iP 07 18 58.8 i(S) 19 13.0 i(S) 19 20.6		eP 07 20 35
				COMP		DILAT		
552	28/10	e(P) 00 23 33.1 i(S) 24 37	e(P) 00 23 46.1 i 23 59.3 iS 25 00.8	eP 00 23 43.7		e(P) 00 23 54.7 i 24 04.9	eiP 00 25 15.1 iS 27 33.0	P 00 25 22
	28/10	iP 03 55 04.8 iS 55 40.8	iP 03 55 07.3 iS 55 44.8	iP 03 55 06.0 i(S) 55 43.7		iP 03 55 00.2 iS 55 32.4	eP 03 56 19.3 iS 57 54.0	iP 03 56 09.5
				COMP		COMP		
	28/10	e(P) 20 50 25.5 eS 51 06.1	eP 20 50 13.3 e(S) 50 40.0 i 50 45.3	eP 20 50 14.2 i 50 41.3 iS 44.7		iP 20 50 03.9 iS 50 24.5		
			(COMP)			COMP		
553	28/10	iP 22 46 11.1 eS 46 49.4	iP 22 46 12.0 eS 46 51.1 i 46 52.5	iP 22 46 04.7 iS 46 39.0		e(P) 22 46 03.0 i 46 03.9 e(S) 46 35.6		
			(DILAT)	COMP				

MES DE OCTUBRE AÑO 1964 HOJA DE DATOS N° 12

N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
554	29/10	eP 03 15 00.4 e(S) 15 26	iP 03 14 52.4 iS 15 14.0	iP 03 14 49.9 iS 15 09.5	iP 03 14 45.8 iS 15 02.7	iP 03 14 41.9 iS 14 55.2		
			DILAT	DILAT	DILAT	DILAT		
555	29/10	eP 07 38 50.7 eS 38 57.8	iP 07 38 50.4 iS 38 57.4	eP 07 38 15.4 eS 39 35.7		e(P)07 39 04.8 i 39 05.6 iS 39 23.1		
		DILAT	(DILAT)					
556	29/10	iP 10 04 50.3 eS 05 30.8	eP 10 04 50.7 eS 05 31.1	eP 10 04 42.9 iS 05 18.1	iP 10 04 48.4 iS 05 27.4	eP 10 04 39.9 e(S) 05 09.0		
		COMP			DILAT			
557	29/10	iP 19 06 50.3 iS 07 32.3	iP 19 07 49.7 iS 08 32.7	iP 19 06 41.8 iS 07 16.5	iP 19 06 45.8 i(S) 07 26.3	S-P=32.2	iP 19 07 47.2 iS 09 15.0	P 19 07 35
		COMP	DILAT	COMP	DILAT			
558	30/10	eP 00 41 57 e(S) 42 30.0	eP 00 41 41.2 i 41 43.1 i(S) 42 02.7	eP 00 41 44.4 i 41 46.7 e(S) 42 09.8	iP 00 41 27.9 eS 41 41.6	S-P=19.0	eP 00 42 35.5 eS 43 43.0	P 00 42 24
			COMP	COMP	COMP	DILAT		
	30 oct	iP 01 48 26.3 iS 48 45.7	iP 01 48 23.9 iS 48 43.3	iP 01 48 17.4 SAT	iP 01 48 29.8 i(S) 48 41.2 i(S) 48 55.3		eP 01 49 40.1 eS 50 59.0	eP 01 49 38
		COMP	DILAT	(DILAT)	DILAT	COMP		
	30/10	e(P)09 27 32 eS 27 58.5	e(P) 09 27 20.2 iS 27 42.7		iP 09 27 07.0 iS 27 22.5	eP 09 27 14.0 eS 27 34.2	eP 09 28 02.9 eS 28 58.9	
			(COMP)			DILAT		
559	30/10	eP 14 56 08.6	iP 14 55 55.0 iS 56 00.6		iP 14 56 06.4 iS 56 19.6	e(P)14 56 03.7 e(S) 56 14.2		
			DILAT		DILAT			
560	30/10	eP 16 11 52 eS 12 26	e(P) 16 11 36.6 i 11 38.7 iS 11 59.7		iP 16 11 23.0 iS 11 35.9	eP 16 11 29.4 iS 11 47.4		
					COMP			

N° orden	Fecha	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	AREQUIPA ARE	LA PAZ LPB
561	31/10	eP 00 50 29.1 eS 50 57.9	iP 00 50 18.3 iS 50 42.5		iP 00 50 05.1 i(S) 50 20.6 i 50 22.3	iP 00 50 10.6 iS 50 30.1	iP 00 51 00.2 iS 58.0	P 00 50 55
			COMP		DILAT	COMP		
562	31/10	eP 02 02 28.8 eS 03 03.8	iP 02 02 30.1 iS 03 06.3		i(P) 02 02 33.2 iS 03 12.9	eP 02 02 22.8 i(S) 02 53.8		
			DILAT		(COMP)	DILAT		
563	31/10	eP 03 18 42.1 e(S) 19 13.5	iP 03 18 32.5 iS 18 58.5		iP 03 18 22.3 iS 18 40.0	iP 03 18 22.5 iS 18 41.0		
			COMP		COMP	DILAT		
		eP 16 16 02.8 eS 16 57.9	iP 16 15 51.9 iS 16 39.4		e(P) 16 15 39.1 iS 16 17.0	iP 16 15 45.2 iS 16 30.9	iP 16 15 52.7 iS 16 41.0	iP 16 15 31.0
		COMP	COMP			DILAT		
564	31/10	eP 17 19 05	e(P) 17 18 53.9 iS 19 17.0		iP 17 18 41.6 i 18 52.5 i(S) 18 56.1	eP 17 18 47.4 iS 19 06.2		
			(COMP)		COMP	(COMP)		
	31/10	eP 18 21 00.9 e 21 30 e(S) (38.0)	iP 18 20 50.6 i 21 14.3 i(S) 21 17.2	iP 18 20 51.2 iS 21 18.3	iP 18 20 39.6 i 20 42.4 i 20 51.9	iP 18 20 41.5 iS 21 00.4		P 18 21 30
			DILAT	DILAT	(COMP)	DILAT		
565	31/10	iP 20 14 20.3 iS 14 26.6	eP 20 14 25.5 iS 14 35.8	eP 20 14 22.3 e(S) 14 31.7	eP 20 14 45.2 iS 15 09.1	eP 20 14 37.0 e(S) 14 54.7		
		COMP	DILAT	DILAT		COMP		

Chile
Antofagasta
Nov. 1964

DETERMINACION PROVISORIA DE EPICENTROS. RED ANDES
PROGRAMA SISMOLOGICO. UNIVERSIDAD DE CHILE - ANTOFAGASTA

BOLETIN N° 18 - NOVIEMBRE DE 1964

Las coordenadas de las estaciones de la Red son:

ANT	ANTOFAGASTA	23° 42' 18" S	70° 24' 55" W	80 m
MIC	MICHILLA	22° 42' 23" S	70° 16' 01" W	100 m
SIN	SALINAS	23° 09' 14" S	69° 36' 40" W	1.350 m
QUL	QUILLAGUA	21° 39' 20" S	69° 31' 42" W	800 m
CAC	CALAMA	22° 28' 47" S	69° 01' 34" W	2.000 m
TCN	TOCONCE	22° 16.5' S	68° 10.3' W	3.300 m
LPB	LA PAZ	16° 31' 57.6" S	68° 05' 54.1" W	3.292 m

La estación de Toconce empezó a funcionar en 1965 y la de Ollagüe, en 1966.

Como chequeo del valor y la correspondencia de los tiempos se utiliza los gráficos S-P vs. P y/o S-P vs. S. La determinación de los hipocentros se ha hecho con el computador mecánico analógico al cual se le introducen las velocidades "medias" calculadas de las Tablas Jeffreys-Bullen (1958); en lo fundamental, se aprovechó la diferencia S-P comprobando y ajustando con los datos P.

En general, el error de las diferencias S-P es del orden de los $\pm 0,2$ seg.; el de los tiempos de llegada a la estación Antofagasta, de $\pm 0,2$ seg., y el de los tiempos de llegada a las restantes estaciones, de $\pm 0,5$ seg. Todo lo anterior, según la apariencia general de los gráficos de corrección de hora e implicando buena definición de las fases.

La numeración (N° orden) es correlativa a partir del Boletín N° 1.

El error de la hora origen se obtiene calculando la desviación standard con respecto a la hora origen, a su vez valor promedio compensado según los datos de los tiempos de llegada de P.

El error de las coordenadas es estimativo, tomando en cuenta la calidad de la solución.

Se menciona las estaciones usadas en el cálculo por medio de las iniciales de cada una de ellas.

El paréntesis indica dato dudoso.

Se agrega los datos de las tarjetas "PRELIMINARY DETERMINATION OF EPI-CENTERS" de la USCGS para sismos con suficiente información de la Red; además, los tiempos registrados en Arequipa y La Paz que también se usan en los cálculos aunque, para sismos en la zona misma de la Red y al sur de ella, presentan desviaciones sistemáticas por lo que, en estos casos, no se les da peso.

N° orden	Fecha	Hora origen	tseg	Coordenadas			Profundidad	N° estaciones usadas	Determinado por:
				ϕ	λ	\pm Min			
590	10/11	19 12 31.7	1.0	22°04'	68°56'	3	100	(M)SQC	R.A.
591		20 15 43.7	0.5	21°19'	68°52'	3	135	(M)SQC	R.A.
592	11/11	02 00 52.5	0.1	24°08'	68°00'	3	255	AMSQC	R.A.
593		02 18 23.2	0.8	21°31'	69°28'	3	22	AMSQC	R.A.
594		13 52 47.5	0.5	24°18'	69°22'	3	25	A(S)(Q)C	R.A.
595	12/11	05 08 54.7	0.4	23°47'	67°32'	3	280	AMSQC	R.A.
596		05 59 19.5	0.6	23°52'	67°41'	9	250	A(M)(S)(C)	R.A.
597		06 44 45.1	0.2	24°00'	67°22'	3	240	AMSQC	R.A.
598	13/11	01 53 10.1	0.2	22°24'	70°15'	6	45	AMSC	R.A.
599		02 54 00.4	0.2	21°07'	68°58'	6	145	(M)S(C)	R.A.
600		03 11 22.5	0.3	21°55'	68°28'	6	125	MSQC	R.A.
601		07 29 05.0	1.1	24°02'	67°47'	3	170	AM(S)QC	R.A.
602		10 07 51.6	0.6	22°36'	68°32'	6	130	(A)(M)SQC	R.A.
603		13 17 43.6	1.2	22°04'	68°49'	6	150	AMS(Q)(C)	R.A.
604		14 06 08.6	0.3	21°23'	68°42'	6	150	AMSQC	R.A.
605		23 25 06.3	0.2	22°23'	68°58'	3	110	A(M)SC	R.A.
606	14/11	03 34 22.4	0.7	22°42'	67°18'	3	260	A(M)(S)(C)	R.A.
		03 32 52.5	0.7	23.5°	64.2°		65	7	USCGS 92-64
607		21 00 29.8	0.1	21°56'	68°35'	3	120	ASQC	R.A.
608	15/11	23 34 04.3	0.2	23°37'	69°04'	6	130	AM(S)(Q)C	R.A.
609		23 54 42.4	0.4	22°24'	68°08'	3	180	AMSC	R.A.
610	16/11	06 32 17.7	0.3	20°53'	69°20'	3	140	M(S)QC	R.A.
611		06 41 17.1	0.2	23°53'	70°34'	3	70	AMSQC	R.A.
612	17/11	00 37 26.7	0.7	21°12'	67°53'	9	225	AM(Q)C	R.A.
613		02 44 18.8	0.4	22°30'	68°47'	3	115	AM(Q)C	R.A.
614		21 02 06.9	0.8	23°05'	68°58'	6	110	(A)MSC	R.A.
615	18/11	03 52 09.5	0.2	21°26'	69°00'	3	130	(A)(M)(S)(C)	R.A.
616	19/11	02 49 31.1	0.3	21°44'	68°55'	3	120	MSQC	R.A.
617		04 20 43.1	0.1	20°35'	67°57'	3	310	A(M)(S)(Q)(C)	R.A.
618		07 30 52.1	0.4	24°05'	67°42'	6	230	A(M)S(Q)C	R.A.

Chile
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Nov. 1964

DETERMINACION PROVISORIA DE EPICENTROS. RED ANDES
PROGRAMA SISMOLOGICO. UNIVERSIDAD DE CHILE - ANTOFAGASTA

BOLETIN N° 18 - NOVIEMBRE DE 1964

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La numeración (N° orden) es correlativa a partir del Boletín N° 1.

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DETERMINACION PROVISORIA DE EPICENTROS. RED ANDES
PROGRAMA SISMOLOGICO. UNIVERSIDAD DE CHILE - ANTOFAGASTA

BOLETIN N° 18 - NOVIEMBRE - 1964

N° orden	Fecha	Hora origen	± seg	Coordenadas			Profundidad	N° Estaciones usadas	Determinado por:
				φ	λ	±Min			
566	1/11	02 17 06.8	0.5	20° 35'	68° 56'	6	90	(M)SQC	R.A.
567		02 36 23.5	0.5	24° 13'	67° 42'	3	200	(A)M(S)(C)	R.A.
568		07 04 46.3	0.3	21° 52'	68° 46'	6	115	AM(Q)C	R.A.
569	3/11	08 02 02	1	23° 43'	69° 30'	9	115	A(M)(S)(C)	R.A.
570		18 02 39.4	0.3	23° 02'	67° 08'	3	250	AMQC	R.A.
571	4/11	02 11 24.9	1.3	19.7°	69.2°		102	21	USCGS 86-64
572		06 00 13.4	0.9	21° 10'	67° 13'	3	280	AM(Q)C	R.A.
		06 00 13*	0.7	21.0°	67.1°		244	6	USCGS 94-64
573	5/11	01 26 11.1	0.4	22° 44'	68° 58'	6	135	A(M)(S)QC	R.A.
574		06 08 50.2	0.5	23° 24'	67° 11'	9	245	A(M)(S)(Q)C	R.A.
575		07 10 13.0	0.5	24° 12'	68° 04'	6	155	AM(S)C	R.A.
576		10 41 00.0	0.3	24° 46'	69° 22'	9	210	AM(S)QC	R.A.
577	6/11	07 54 43.9	0.5	22° 07'	70° 22'	9	60	(M)S(Q)C	R.A.
578		14 20 17.0	0.2	22° 07'	68° 48'	6	105	MS(Q)C	R.A.
579		16 31 17.2	0.4	21° 18'	67° 38'	6	215	A(M)(Q)C	R.A.
		16 31 11.9	0.5	21.0°	67.2°		179	12	USCGS 88-64
580	7/11	00 47 15.4	0.4	21° 20'	68° 39'	9	125	(M)(S)QC	R.A.
581		05 00 57.0	0.5	21° 58'	68° 54'	3	30	AM(S)(Q)C	R.A.
582		09 22 13.5	0.4	23° 32'	69° 24'	3	85	(A)(M)SQC	R.A.
583	8/11	16 40 46.7	0.4	21° 48'	67° 24'	9	195	AM(Q)C	R.A.
584	9/11	04 21 46.0	0.8	22° 31'	66° 48'	3	315	(A)M(S)C	R.A.
585		14 16 02.6	0.2	21° 08'	68° 48'	3	155	(A)MSC	R.A.
586		20 20 06.4	0.5	21° 49'	68° 43'	3	125	MSQC	R.A.
587	10/11	00 25 22.4	0.5	22° 20'	69° 22'	3	95	AM(S)(Q)(C)	R.A.
588		04 17 05.8	0.3	24° 21'	67° 29'	3	215	AMS(Q)C	R.A.
		04 16 48*	0.2	24.4°	65.7°		75	6	USCGS 90-64
589		10 00 13.5	1	24° 20'	67° 52'	3	220	A(M)S(Q)(C)	R.A.

N° orden	Fecha	Hora origen		Coordenadas			Profundidad	N° estaciones usadas	Determinado por:
			tseg	ϕ	λ	±Min			
590	10/11	19 12 31.7	1.0	22°04'	68°56'	3	100	(M)SQC	R.A.
591		20 15 43.7	0.5	21°19'	68°52'	3	135	(M)SQC	R.A.
592	11/11	02 00 52.5	0.1	24°08'	68°00'	3	255	AMSQC	R.A.
593		02 18 23.2	0.8	21°31'	69°28'	3	22	AMSQC	R.A.
594		13 52 47.5	0.5	24°18'	69°22'	3	25	A(S)(Q)C	R.A.
595	12/11	05 08 54.7	0.4	23°47'	67°32'	3	280	AMSQC	R.A.
596		05 59 19.5	0.6	23°52'	67°41'	9	250	A(M)(S)(C)	R.A.
597		06 44 45.1	0.2	24°00'	67°22'	3	240	AMSQC	R.A.
598	13/11	01 53 10.1	0.2	22°24'	70°15'	6	45	AMSC	R.A.
599		02 54 00.4	0.2	21°07'	68°58'	6	145	(M)S(C)	R.A.
600		03 11 22.5	0.3	21°55'	68°28'	6	125	MSQC	R.A.
601		07 29 05.0	1.1	24°02'	67°47'	3	170	AM(S)QC	R.A.
602		10 07 51.6	0.6	22°36'	68°32'	6	130	(A)(M)SQC	R.A.
603		13 17 43.6	1.2	22°04'	68°49'	6	150	AMS(Q)(C)	R.A.
604		14 06 08.6	0.3	21°23'	68°42'	6	150	AMSQC	R.A.
605		23 25 06.3	0.2	22°23'	68°58'	3	110	A(M)SC	R.A.
606	14/11	03 34 22.4	0.7	22°42'	67°18'	3	260	A(M)(S)(C)	R.A.
		03 32 52.5	0.7	23.5°	64.2°		65	7	USCGS 92-64
607		21 00 29.8	0.1	21°56'	68°35'	3	120	ASQC	R.A.
608	15/11	23 34 04.3	0.2	23°37'	69°04'	6	130	AM(S)(Q)C	R.A.
609		23 54 42.4	0.4	22°24'	68°08'	3	180	AMSC	R.A.
610	16/11	06 32 17.7	0.3	20°53'	69°20'	3	140	M(S)QC	R.A.
611		06 41 17.1	0.2	23°53'	70°34'	3	70	AMSQC	R.A.
612	17/11	00 37 26.7	0.7	21°12'	67°53'	9	225	AM(Q)C	R.A.
613		02 44 18.8	0.4	22°30'	68°47'	3	115	AM(Q)C	R.A.
614		21 02 06.9	0.8	23°05'	68°58'	6	110	(A)MSC	R.A.
615	18/11	03 52 09.5	0.2	21°26'	69°00'	3	130	(A)(M)(S)(C)	R.A.
616	19/11	02 49 31.1	0.3	21°44'	68°55'	3	120	MSQC	R.A.
617		04 20 43.1	0.1	20°35'	67°57'	3	310	A(M)(S)(Q)(C)	R.A.
618		07 30 52.1	0.4	24°05'	67°42'	6	230	A(M)S(Q)C	R.A.

N° orden	Fecha	Hora origen		Coordenadas			Profundidad	N° estaciones usadas	Determinado por:
			+seg	ϕ	λ	+Min			
619	19/11	08 29 02.7	0.6	20°44'	68°53'	9	70	(A)(M)(S)QC	R.A.
620		10 10 51.9	0.6	22°21'	68°47'	9	100	(A)(M)SQC	R.A.
621		15 19 21.8	0.3	21°52'	67°31'	6	230	MS(Q)C	R.A.
622	20/11	06 03 10.9	1.3	23°32'	67°28'	6	290	ASQC	R.A.
623		19 26 30.6	0.8	22°32'	68°26'	3	165	(A)MQC	R.A.
624		20 03 47.4	0.2	24°01'	67°28'	3	220	A(M)(Q)C	R.A.
625	21/11	11 56 46.3	0.7	21°22'	70°41'	6	135	(A)M(S)(Q)(C)	R.A.
		11 57 00.3	0.8	19.9°	70.4°		118	10	USCGS 92-64
626		12 48 44.0	0.2	22°00'	68°36'	6	135	MS(Q)(C)	R.A.
627		12 50 53.9	1.2	24°22'	67°28'	6	160	A(M)S(C)	R.A.
628		14 03 29.1	0.6	21°18'	68°27'	9	Sup.	(A)M(S)(Q)(C)	R.A.
629		15 26 17.3	0.2	23°12'	69°06'	6	95	A(M)S(Q)C	R.A.
630	22/11	05 24 01.6	0.4	22.9°	65.7°		135	11	USCGS 95-64
631		08 09 09.7	0.4	22°48'	68°38'	6	140	(A)S(Q)(C)	R.A.
632		09 32 46.7	0.4	22°52'	69°28'	6	85	ASQC	R.A.
633		17 40 01.8	0.1	21°48'	69°02'	9	155	(A)SQC	R.A.
634	23/11	10 26 30	1.1	20.5°	70.0°		10	6	USCGS 101-64
635		10 47 16.6	1.5	31.5°	72.0°		68	15	USCGS 93-64
636		23 32 13.5	0.6	23°44'	67°28'	6	270	AM(S)QC	R.A.
637	24/11	00 48 15.8	0.4	22°15'	68°34'	6	130	(M)(S)QC	R.A.
638		03 27 49.3	0.9	21°56'	68°47'	6	110	(M)(S)(Q)C	R.A.
639		11 45 54.7	0.5	23°24'	70°30'	6	Sup.	AM(S)(Q)C	R.A.
640		22 06 55.8	0.8	24°15'	67°26'	6	195	AMS(Q)C	R.A.
641	25/11	04 35 42.4		21.2°	69.7°	9	Sup.	AM(S)(Q)(C)	R.A.
		04 35 56.7	0.5	20.6°	69.6°		78	7	USCGS 93-64
642		06 17 54.4	0.7	21°20'	69°12'	3	135	(M)(S)(Q)(C)	R.A.
643		08 51 54.2	0.3	22°53'	68°58'	3	110	AS(Q)C	R.A.
644		20 17 40.8	0.3	21°58'	68°44'	6	135	(A)(M)S(Q)(C)	R.A.
645		20 28 55.5	0.3	22°13'	70°20'	6	15	(A)(M)(S)(Q)(C)	R.A.
646	26/11	01 42 59.0	0.3	22°40'	69°12'	3	100	AMS(Q)(C)	R.A.

N° orden	Fecha	Hora origen.		COORDENADAS			Profundidad	N° Estaciones usadas	Determinado por:
			±seg	φ	λ	±Min			
647	26/11	12 20 48.8	0.3	20°14'	69°02'	3	75	(A)(M)(S)QC	R.A.
648		18 02 23.4	0.3	21°04'	68°42'	6	125	(M)(S)(Q)C	R.A.
649		20 33 32.8	0.2	21°55'	68°53'	9	110	MS(Q)C	R.A.
650		20 48 39.5	0.5	23°19'	67°10'	6	210	M(S)(Q)(C)	R.A.
651	28/11	16 41 33.4	0.5	07.7°	71.2°		626	24	USCGS 74-64
652		16 49 30.3	0.5	08.0	71.4°		655	17	USCGS 93-64
653		23 06 34.3	0.3	21°37'	68°44'	3	135	AMSC	R.A.
654	29/11	22 54 43	0.2	22°18'	66°23'	3	300	A(M)S(C)	R.A.
655	30/11	03 11 02.8	0.1	21°28'	68°50'	6	170	(A)M(S)C	R.A.
656		10 32 30.6	0.2	23° 04'	69° 12'	6	105	AM(S)(C)	R.A.

MES Noviembre AÑO 1964 Hoja de datos Nº 1

Nº orden	Fecha	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
	1/11	eP 01 52 05 e(S) 52 33	eP 01 50 55.5 iS 51 18.4	eP 01 51 53.2 iP 51 59.4 eS 52 24.4 iS 52 27.0	iP 01 51 41.8 i(S) 52 18.7	iP 01 51 50.8 iS 52 12.7		
			COMP		COMP	COMP		
566			e(P)02 17 44.9 e(S) 18 05.1	eP 02 17 43.7 eS 18 13.2	iP 02 17 27.7 iS 17 43.4	iP 02 17 36.2 iS 17 58.5		
					DILAT	DILAT		
		eP 02 24 41.0 eS 24 51.9	e(P)02 25 55.6 e 26 09.2 i 26 22.1	eP 02 24 50.0 eS 25 13.0		e(P)02 25 03.4 i 25 18.0 i 25 37.0		
567		eP 02 37 08.8 e(S) 37 43.3	iP 02 37 10.9 eS 37 47.9	iP 02 37 03.7 i(S) 37 34.2		e(P)02 37 03.7 eS 37 34.8		
			COMP					
568	3/11	eP 07 05 26.7	iP 07 05 16.2 eS 05 38.9		iP 07 04 06.5 i(S) 04 21.5	iP 07 05 05.5 iS 05 20.0		
			COMP		COMP	DILAT		
569		eP 08 02 22.7 iS 02 39.0	iP 08 02 28.9 i(S) 02 52.3		iP 08 02 38.6 i(S) 03 11.1	eP 08 02 27.9 i 02 28.5 i(S) 02 49.5		
		COMP. DEL SE				COMP		
		eP 09 09 32.0	e(P)09 09 22.1 e(S) 09 51.4		iP 09 09 11.1 iS 09 29.8	iP 09 09 11.0 iS 09 28.8		
					DILAT	DILAT		
570		iP 18 03 33.3 iS 04 15.4	iP 18 03 31.8 i 03 33.0 iS 04 12.2 i 04 13.6		iP 18 03 28.4 i 03 29.3 i(S) 04 07.6	eP 18 03 20.4 iS 03 52.5	P 18 04 15	
		COMP. DEL E	DILAT		COMP	DILAT		

MES Noviembre AÑO 1964 Hoja de datos Nº 2

Nº orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
571	4/11	eP 02 12 25.3 i 12 26.7 e(S) 13 06.0	eP 02 12 14.6 i 12 17.0 i 12 25.1 S SAT		eP 02 12 00.0 i 12 01.4 S SAT	eP 02 12 11.4 iP 12 13.9 S SAT	iP 02 12 20.5	iP 02 12 23.3 i(S) 13 04.2
			COMP					
572		eP 06 01 18.5 iS 02 09.1	iP 06 01 11.9 i 01 13.6 iS 01 56.4 i 01 58.4		e(P)06 01 59.8 i(S) 02 36.6	iP 06 00 59.3 iS 01 35.5	P 06 01 24	iP 06 01 43.5 iS 02 53.0
		COMP DEL E	COMP			COMP		
		eP 10 18 17.2 eS 18 43.7	eP 10 18 06.1 i 18 10.0 eS 18 28.5 i 18 28.7 i 18 31.5		iP 10 18 51.7 i(S) 19 11.4	iP 10 18 00.4 iS 18 22.3	P 10 18 40.0	iP 10 18 42.0 iS 19 34.1
			COMP		COMP	COMP		
573	5/11	eP 01 26 56 iS 27 26	e(P)01 26 45.5 eS 27 10.0	eP 01 26 44.9 i 26 45.1 eS 27 11.4 i 27 11.8	i(P)01 26 31.9 i(S) 26 47.1	iP 01 26 37.1 iS 26 56.2		
						DILAT		
574		iP 06 09 41 iS 10 21	iP 06 09 40.9 e(S) 10 18.8	iP 06 09 32.7 i(S) 10 07.1	i(P)06 09 39.1 i(S) 10 17.2	eP 06 09 30.2 i 09 30.8 iS 10 02.1		eP 06 10 42.2 iS 12 11.0
		COMP DEL SSE	DILAT	DILAT		DILAT		
575		eP 07 10 53.0 eS 11 22.0	eP 07 10 56.6 eS 11 29.6	eP 07 10 46.7 e(S) 11 12.8 i 11 13.6		iP 07 10 49.9 iS 11 17.3		
			DILAT					
576		iP 10 41 35.3 iS 42 00.1	iP 10 41 44.3 i 41 45.3 i(S) 42 14.7	iP 10 41 36.2 i(S) 42 04.2	iP 10 41 55.1 i(S) 42 36.1	eP 10 41 44.5 i 41 44.8 iS 42 17.9		iP 10 43 06.0 iS 44 42.5
		DILAT DEL E	DILAT		COMP			

MES Noviembre AÑO 1964 Hoja de datos N° 3

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
577	6/11		iP 07 54 57.2 i 54 59.6 i 55 01.6 i(s) 55 07.5	iP 07 55 05.9 i(s) 55 21.5	iP 07 55 01.0 i(s) 55 14.7 i 55 22.2	eP 07 55 07.6 i(s) 55 24.0	P 07 56 23	eP 07 56 07.0 iS 57 10.8
			DILAT	COMP		COMP		
578			iP 14 20 44.3 iS 21 04.9	eP 14 20 41.5 i 20 42.2 iS 21 00.4	iP 14 20 36.5 i(s) 20 50.5	iP 14 20 33.5 iS 20 45.8		
			DILAT			COMP		
579		iP 16 30 13.7 iS 30 57.7	iP 16 32 05.9 i(s) 32 44.0		eP 16 31 54.2 i 31 54.5 iS 32 25.3	iP 16 31 54.2 iS 32 23.4	iP 16 32 25.8 S 33.2	iP 16 32 41.5 iS 33 46.5
		COMP DEL NE	DILAT					
580	7/11		e(P)00 47 50.4 i(S) 48 15.2	e(P)00 47 50.3 eS 48 15.6	iP 00 47 37.0 iS 47 52.2	iP 00 47 41.3 iS 48 00.3		
			(DILAT)					
581		eP 05 01 37.1 iS 02 08.1	iP 05 01 25.9 i 01 28.0 eS 01 45.7 i 01 46.8	e(P)05 02 23.3 eS 02 42.2	e(P)05 01 10.9 i(S) 01 20.1	iP 05 01 08.8 iS 01 17.1		
			COMP			DILAT		
582		iP 09 22 33.3 i(S) 22 48.1	iP 09 22 36.4 i(S) 22 52.4	iP 09 22 27.8 i(S) 23 12.4	iP 09 22 46.8 i(S) 23 14.1	P 09 22 36.1 i(S) 22 52.0	eP 09 24 20	eP 09 24 03.2 iS 25 11.4
		COMP DEL SSE	DILAT	DILAT	COMP	COMP		
583	8/11	eP 16 41 40.5 eS 42 19.6	eP 16 41 34.0 i 41 35.6 iS 42 09.2		eP 16 41 24.6 i 41 25.1 i(S) 55.2	iP 16 41 20.9 i 41 28.8 iS 41 47.7	iP 16 42 08 S 43 11	iP 16 42 21.1 iS 43 35.0
			COMP		DILAT			
		eP 22 40 09.9 e 40 11.0 e(S) 40 40.6	eP 22 39 58.3 i 40 01.1 i(S) 40 24.4	eP 22 39 57.2 iS 40 23.6		iP 22 39 47.6 i(S) 40 07.2 i 40 07.7	P 22 40 39	eP 22 40 51.0 e 41 49.0
			COMP			DILAT		

MES Noviembre AÑO 1964 Hoja de datos N° 4.

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
	8/11	eP 23 28 43.3 e(S) 29 09.8 i iS	iP 23 28 33.5 i 28 34.1 iS 28 57.6 DILAT	iP 23 28 31.1 iS 28 54.1		iP 23 28 22.1 iS 28 38.2	eP 23 29 33	
584	9/11	iP 04 22 49.7 e(S) 23 38.3 i 23 39.7 COMP DEL NE	iP 04 22 46.0 i 22 47.3 eS 23 33.2 DILAT	iP 04 22 40.4 i(S) 23 23.6 COMP		iP 04 22 33.8 iS 23 12.5	iP 04 23 14.5 S 24 23	iP 04 23 32.1 iS 24 56.0
		eP 09 05 49.7 e 06 09.5 eS 06 31.4	iP 09 05 49.9 i 05 50.9 i(S) 06 03.6 DILAT	eP 09 05 56.6 i(S) 06 18.1		iP 09 05 54.7 iS 06 15.8	eL 09 07	
585		eP 14 16 50.2 e(S) 17 22.5	eP 14 16 40.7 iS 17 08.6 COMP	eP 14 16 39.9 eS 17 08.7		iP 14 16 31.0 iS 16 52.9		
		eP 18 50 04.1 i 50 23.9 i(S) 50 35.9	eP 18 49 51.3 i 49 52.4 i(S) 50 11.6 COMP	eP 18 49 51.1 i 49 52.1 iS 50 11.8 i 50 14.0	i(P)18 49 40.2	iP 18 49 42.1 iS 49 57.0	eP 18 50 36	i(P)18 50 52.0 iS 51 45.0
586			iP 20 20 38.2 eS 21 01.6 DILAT	eP 20 20 36.6 e(S) 20 59.7 i 21 00.0	iP 20 20 27.3 i(S) 20 43.3	iP 20 20 27.1 iS 20 42.7		
587	10/11	eP 00 25 52.2 i 25 53.2 iS 26 13.2	iP 00 25 44.3 iS 25 59.4 DILAT	iP 00 25 42.3 i(S) 25 57.1 DILAT	iP 00 25 40.4 i(S) 25 53.9 DILAT	iP 00 25 37.1 i 40.9 iS 51.2 COMP	eP 00 27 07	
588		iP 04 17 52.4 iS 18 28.9	iP 04 17 55.5 eS 18 32.8 i 18 34.5 DILAT	iP 04 17 46.8 iS 18 19.4 DILAT	eP 04 17 58.1 i(S) 18 37.2 (COMP)	eP 04 17 47.6 iS 18 20.6	eP 04 18 57 (S) 20 25	eP 04 19 07.0 iS 41.7
		COMP DEL E	DILAT	DILAT	(COMP)	DILAT		

MES Noviembre AÑO 1964 Hoja de datos N° 5.

N° Orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
	10/11	e(P)09 01 00.9 eS 01 53.9	e(P)09 00 46.0 i 00 46.7 i(S) 01 22.0	e(P)09 00 49.1 e(S) 01 30.1	eP 09 00 30.5 i 00 30.9 i(S) 00 51.8	e(P)09 00 42.0 e(S) 01 13.7	P 09 01 06 S 01 55	iP 09 01 02.0 iS 59.3
589		eP 10 00 58.2 eS 01 32.6 DILAT	e(P)10 01 01.5 iS 01 38.3	eP 10 00 52.5 eS 01 23.6	e(P)10 01 03.6 iS 01 44.4	e(P)10 00 52.9 e(S) 01 25.0		
590			e(P)19 13 55.7 e 14 03.0 e(S) 14 14.1	iP 19 13 48.2 iS 14 01.7 DILAT	eP 19 14 58.3 eS 15 17.9	iP 19 13 47.1 iS 13 58.9 COMP		
591			e(P)20 16 18.4 iS 16 44.1	e(P)20 16 17.7 eS 16 43.6	iP 20 16 04.2 i(S) 16 20.3 DILAT	iP 20 16 08.7 iS 16 28.0 COMP		
592	11/11	eP 02 01 39.9 eS 02 16.0	iP 02 01 42.6 iS 02 20.3	iP 02 01 33.9 iS 02 06.0	eP 02 01 44.5 eS 02 24.8	eP 02 01 34.0 i 34.3 eS 02 07.0 DILAT		
593		eP 02 19 02.1 eS 19 31.6	eP 02 18 46.9 iS 19 04.3 DILAT	eP 02 18 50.6 eS 19 11.5 DILAT	iP 02 18 26.5 i(S) 18 29.6	eP 02 18 42.8 iS 18 56.3 DILAT		
				eP 11 11 21.3 iS 11 48.6	e(P)11 12 10.5 eS 12 25.0	iP 11 11 19.2 e(S) 11 32.7 DILAT		iP 11 11 24.7 iS 33.7
594		iP 13 53 05.7 iS 53 19.6 COMP DEL ENE		iP 13 53 07.3 i(S) 53 22.0	i(P)13 53 28.7 i(S) 01.9	eP 13 53 17.5 i 53 17.8 iS 53 40.8		

MES Noviembre AÑO 1964 Hoja de datos Nº 6

Nº orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
	11/11		eP 22 33 25.4 eS 33 50.7	e(P)22 33 24.7 iS 33 52.7	iP 22 33 10.6 i(S) 33 29.0 i 33 29.8	iP 22 33 15.8 i(S) 33 37.5		
					COMP	DILAT		
	12/11	eP 00 04 43.4 eS 04 49.5	eP 00 04 48.9 iS 04 59.4	e(P)00 04 43.9 e(S) 04 51.0		e(P)00 04 58.9 e(S) 05 17.4		
595		eP 05 09 46.3 e 10 26.1	iP 05 09 48.0 e(S) 10 27.7	eP 05 09 34.5 i 09 39.8 iS 10 14.5	i(P)05 09 47.8 iS 10 29.2	eP 05 09 38.6 i 09 38.9 iS 10 12.8		
			COMP	DILAT	DILAT			
596		eP 06 00 06.3 i 00 06.7 eS 00 43.3	e(P)06 00 09.0 iS 00 46.0	iP 05 59 00.2 iS 32.7		e(P)06 00 00.3 e(S) 00 32.1		iP 06 01 34.7 eS 50.0
597		eP 06 45 35.3 eS 46 12.7 iS 46 14.1	eP 06 45 37.4 iS 46 16.2 i 46 18.0	iP 06 45 28.9 iS 46 03.1	i(P)06 45 37.2 e(S) 46 18.6	eP 06 45 28.0 iS 46 01.4		
					DILAT			
		eP 12 14 51.2 iS 15 49.0	eP 12 14 38.5 i 15 38.8 i(S) 15 26.7	iP 12 14 45.3 i 14 45.6 iS 15 39.5	e(P)12 14 35.0 iS 15 24.8	eP 12 14 40.2 i 14 42.6 i 14 51.6	iP 12 14 23.2 S 14 44.0	iP 12 14 10.3 iS 14 28.2
			COMP					
			eP 15 12 24.1 e(S) 13 33.3	e(P)15 12 30.1	e(P)15 12 07.4 e 12 13.3 e(S) 13 12.4	eP 15 12 02.7 i(S) 13 11.0	P 15 11 40.0 S 12 17.0	iP 15 11 13.2 iS 11 28.8
		e(P)21 18 53.4 i 18 59.2 i(S) 19 46	eP 21 18 41.3 i(S) 06.4	eP 21 18 44.7 i(S) 19 09.7 i 20.8	i(P)21 18 26.1	eP 21 18 37.2 i 18 50.9 i(S) 19 05.9 i 19 13.7	iP 21 18 55.0	iP 21 18 59.4 iS 19 46.6
			COMP					

MES Noviembre AÑO 1964 Hoja de datos Nº 7

Nº orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
	13/11	eP 00 27 03.6 eS 27 15.3	e(P)00 27 18.7 iS 27 46.1	e(P)00 27 13.0 i(S) 27 35.2		eP 00 27 25.4 i 27 40.6 i(S) 27 59.6		
598		eP 01 53 32.6 eS 53 50.2	eP 01 53 18.4 iS 53 24.5	iP 01 53 27.4 iS 53 40.4		eP 01 53 30.9 i 53 31.4 i(S) 53 45.1		
			DILAT	COMP		DILAT		
599			e(P)02 54 37.3 e(S) 55 02.2 e 55 05.8	iP 02 54 36.4 iS 55 04.6	iP 02 54 22.6 iS 54 39.6	iP 02 54 27.9 iS 49.1		
				DILAT	COMP	DILAT		
600			iP 03 11 54.3 iS 12 17.6	eP 03 11 52.5 eS 12 15.4	eP 03 11 45.6 iS 12 03.1	iP 03 11 43.4 iS 11 59.2		
			COMP	COMP		COMP		
601		eP 07 30 46.1 eS 31 17.6	eP 07 29 48.4 iS 30 22.8	e(P)07 30 40.4 e(S) 31 08.0 e 31 09.1	S-P=36.5	e(P)07 30 41.9 e(S) 31 09.7		
			COMP					
602		eP 10 08 26.6 i 08 27.9 e(S) 08 52.0	eP 10 08 20.7 i(S) 43.6	iP 10 08 15.5 iS 08 34.8	S-P=20.8	eP 10 08 09.7 i 08 10.0 iS 08 24.3	eP 10 08 09.8 iS 28.9	
			COMP	COMP	DILAT	COMP		
603		eP 13 18 21.9 eS 18 47.9	iP 13 18 13.1 iS 18 35.6	iP 13 18 11.1 iS 18 32.5	(S-P)=17.7	iP 13 18 03.0 i(S) 18 21.3		
			COMP	COMP		DILAT		
604		e(P)14 06 54.7 eS 07 29.3	eP 14 06 43.4 iS 07 10.7	eP 14 06 42.8 i 06 44.0 iS 07 11.8	(S-P)=18.1	iP 14 06 34.5 iS 06 54.8	eP 14 07 19 iS 08 29.5	iP 14 07 32.4 iS 08 29.5
					DILAT	DILAT		

MES Noviembre AÑO 1964 Hoja de datos N° 8

N° order	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
	13/11		iP 23 21 52.8 iS 22 16.2		S-P=15.8	eP 23 21 46.0 iS 22 04.3		eiP 23:23 38.5 iS 42.7
			COMP		DILAT	COMP		
605		eP 23 25 38.6 i 26 02.8	iP 23 25 30.9 i(S) 25 49.9		S-P=15.8	iP 23 25 22.1 iS 25 33.7		
					DILAT	DILAT		
606	14/11	iP 03 34 16.0 eS 34 57.4	iP 03 34 11.1 i(S) 34 46.3		(S-P)=35.6	iP 03 34 01.1 i(S) 34 31.6	P 03 34 54 S 36 08	eP 03 35 08.5 iS 36 32.2
		COMP DEL ENE	DILAT			DILAT		
607		eP 21 01 11.0 eS 01 37.3		iP 21 01 59.2 iS 01 21.3	S-P=16.6	iP 21 00 49.9 iS 01 04.9		
				COMP		DILAT		
608	15/11	iP 23 34 25.9 iS 34 42.2	iP 23 34 26.5 iS 34 44.7	iP 23 34 18.9 i(S) 34 31.1	(S-P)=24.9	iP 23 34 24.5 i(S) 34 39.6		
			DILAT	DILAT	COMP	(COMP)		
609		eP 23 55 25.5 eS 55 57.8	iP 23 55 20.1 iS 55 48.6	iP 23 55 14.8 e(S) 55 40.0		iP 23 55 08.9 iS 55 29.2		
				DILAT		DILAT		
610	16/11		eP 06 32 52.8 eS 33 18.2 i 33 19.7	e(P)06 33 56.6 e(S) 34 25.8	S-P=16.9	iP 06 33 48.1 iS 34 11.7		
					DILAT	DILAT		
611		iP 06 41 27.6 iS 41 35.2	iP 06 41 38.1 iS 44 54.0	iP 06 41 37.8 iS 41 53.4	S-P=29.6	iP 06 41 50.1 iS 42 14.8	P 06 43 02.8 L 52.5	eP 06 43 04.4 iS 44 26.0
			COMP	COMP	COMP	COMP		
612	17/11	e(P)00 38 23.3 eS 39 05.8	eP 00 38 14.5 iS 38 51.8		(S-P)=29.0	eP 00 38 03.5 iS 38 33.2		
						COMP		

MES Noviembre AÑO 1964 Hoja de datos N° 9

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
613	17/11		eP 02 44 45.2 eS 45 06.0	eP 02 44 41.6 iS 44 58.9	(S-P)=18.6	iP 02 44 35.7 iS 44 48.1		
			COMP			DILAT		
614		e(P)21 02 27.6 eS 02 49.1	iP 21 02 23.9 iS 02 42.3	iP 21 02 19.3 iS 02 32.5		iP 21 02 17.7 iS 02 29.8		
			DILAT	COMP		COMP		
615	18/11		e(P)03 52 40.1 e(S) 53 04.0	e(P)03 52 41.1 e(S) 53 05.8	(S-P)=14.8	e(P)03 52 32.8 eS 52 50.8		
		eP 08 00 41.5 i(S) 01 21.0	iP 08 00 42.9 iS 01 21.7	eP 08 00 35.4 i 00 36.7 eS 01 09.2 i 01 10.1		e(P)08 00 35.0 e(S) 01 08.6		
			COMP	COMP				
616	19/11		iP 02 50 00.8 iS 50 23.3	eP 02 50 01.1 eS 50 23.6	eP 02 49 50.3 eS 50 04.3 i 50 04.8	iP 02 49 51.3 iS 50 06.7		
			COMP	DILAT		DILAT		
617		eP 04 21 51.6 eS 22 43.4	iP 04 21 42.7 iS 22 27.7	eP 04 21 42.1 i 21 42.8 iS 22 26.8	e(P)04 21 31.4 i(S) 22 08.0	e(P)04 21 31.5 e(S) 22 10.5	iP 04 21 47.0 S 22 35	iP 04 22 07.3 iS 23 13.3
			DILAT	COMP				
618		eP 07 31 40.2 iS 32 16.0	iP 07 31 41.7 i(S) 32 21.0	eP 07 31 34.1 iP 31 34.3 eS 32 06.3	eP 07 31 43.7 i(S) 32 04.1	eP 07 31 33.3 iS 32 05.4		
			COMP		DILAT	COMP		
619		e(P)08 29 55.3	e(P)08 29 40.9 i(S) 30 10.0	e(P)08 29 43.2 i 29 44.8 e(S) 30 15.8	iP 08 29 23.6 iS 29 38.8	iP 08 29 33.5 iS 29 56.6		iP 08 30 23.0 iS 31 11.0
					DILAT	DILAT		
620		e(P)10 11 26.0 eS 11 49.0	iP 10 11 17.0 i(S) 11 35.0	iP 10 11 14.7 iS 11 31.4	iP 10 11 12.2 i(S) 11 27.7	iP 10 11 05.8 iS 11 16.4		
			DILAT	DILAT	DILAT	DILAT		

MES Noviembre AÑO 1964 Hoja de datos N° 10.

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
621	19/11		iP 15 20 10.7 iS 20 46.5	iP 15 20 07.6 iS 20 41.8	e(P)15 20 01.8 i(S) 20 32.5	eP 15 19 58.2 i 19 59.7 iS 20 26.6	eP 15 20 41 S 21 43	
			DILAT					
		eP 22 07 34.0 i 07 35.9 iS 07 56.5	iP 22 07 27.2 S SAT	iP 22 07 24.0 i(S) 07 34.1	i(P)22 07 22.8	iP 22 07 18.5 i(S) 07 25.5	eP 22 08 32	iP 22 08 43.1 iS 09 02.5
			DILAT	DILAT	DILAT	COMP		
622	20/11	iP 06 03 58.3 eS 04 38.5		eP 06 03 51.7 iS 04 27.6	iP 06 04 59.3 eS 04 40.2	eP 06 03 48.7 iS 04 23.2		
				COMP	DILAT	COMP		
623		e(P)19 27 09.4 eS 27 39.0 i 27 40.7	eP 19 27 03.9 eS 27 29.8		iP 19 27 59.9 iS 27 23.0	iP 19 26 52.4 iS 27 10.3		
					DILAT	DILAT		
624		eP 20 04 35.3 eS 05 12.6	iP 20 04 37.0 e(S) 05 15.5		iP 20 04 39.0 e(S) 05 19.3	iP 20 04 28.4 iS 05 00.5		
			COMP			COMP		
	21/11	iP 09 24 51.6 iS 24 56.7	e(P)09 25 06.6 i 25 07.3 iS 25 23.2	eP 09 25 04.2 eS 25 18.9 i 25 20.4		iP 09 24 18.8 e(S) 25 44.6		
		DILAT	DILAT	DILAT		DILAT		
625		iP 11 57 25.5 i(S) 57 55.1	iP 11 57 12.6 iS 57 34.6	iP 11 57 21.2 i 57 37.1 i 57 42.9	iP 11 57 06.7 i(S) 57 28.6	iP 11 57 19.8 i(S) 57 45.7	P 11 58 07 (S) 59 05 (S) 59 07	iP 11 57 56.0 S 58 44.6
			COMP	DILAT	COMP	DILAT		
626			iP 12 49 14.4 iS 49 37.7	eP 12 49 12.0 i 49 13.5 iS 49 34.0	eP 12 49 06.5 i(S) 49 24.1	eP 12 49 03.4 i 49 03.9 i(S) 49 18.5		
			DILAT		COMP	COMP		

MES Noviembre AÑO 1964

Hoja de datos N° 11

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
627	21/11	eP 12 51 40.2 eS 52 14.8	iP 12 51 41.1 eS 52 19.1 i 52 20.4	eP 12 51 33.9 iS 52 04.5		iP 12 51 34.4 e(S) 52 05.9		
			COMP	DILAT		DILAT		
628		eP 14 04 11.4 i(S) 04 48.6	eP 14 04 04.7 i 04 06.4 i(S) 04 32.2	eP 14 04 00.3 iP 04 01.6 iS 04 27.1	iP 14 03 46.2 i(S) 03 59.1	iP 14 03 51.3 i(S) 04 10.9	P 14 04 40	iP 14 05 45.6 e 06 03.7
				COMP	COMP	DILAT		
629		eP 15 26 41.2 eS 26 59.2	e(P) 15 26 39.9 iS 26 56.9	iP 15 26 32.4 iS 26 44.2	iP 15 26 45.4 e(S) 27 08.3	iP 15 26 35.0 iS 26 48.2		
				DILAT	DILAT	COMP		
630	22/11	iP 05 25 04.6 iS 25 44.4		(S-P)=33.3	iP 05 25 00.4 S (S) SAT	iP 05 24 52.1 i(S) 25 21.0	P 05 25 49.0 S 27 03	eiP 05 26 02.1 iS 27 23.9
				DILAT	COMP	DILAT		
631		eP 08 09 45.3 iS 10 10.6		S-P = 18.0	iP 08 09 37.4 i(S) 09 59.1	iP 08 09 29.8 i(S) 09 45.2	eP 08 11 00	
				COMP DE NE	DILAT	DILAT	COMP	
632		eP 09 33 08.0 iS 33 24.9		S-P = 09.9	iP 09 33 08.2 iS 33 25.0	iP 09 33 00.8 iS 33 12.1		
				COMP	(DILAT)	DILAT		
633		e(P) 17 40 44.6 eS 41 15.0		S-P = 24.3	iP 17 40 23.9 iS 40 40.9	iP 17 40 24.9 iS 40 42.8		
				DILAT		COMP		
634	23/11	eP 10 27 42.0 i(S) 28 36.0			iP 10 27 39.7 S SAT	e(P) 10 27 28.3 i 27 29.8 S SAT	P 10 27 38.3 S 28 25	eiP 10 27 35.5 i 41.0 iS 28 14.5
635		e(P) 10 49 02 i 49 20.0 e(S) 50 32 (e) 50 51		e(P) 10 49 13.1 i 49 26.6 e(S) 50 18.5 (e) 51 06.3 i 51 12.7	(COMP)	e(P) 10 49 20.7 e(S) 51 30.8		

MES Noviembre AÑO 1964 Hoja de datos N° 12

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
636	23/11	iP 23 33 05.1 iS 33 44.2	iP 23 33 05.9 iS 33 46.2	e(P)23 32 57.6 i 32 58.0 eS 33 32.5	iP 23 33 06.3 iS 33 46.5	iP 23 32 56.6 eS 33 30.2	P 23 36 45.5 e(L) 48	eiP 23 36 57.7
		COMP	COMP	COMP	COMP			
637	24/11		e(P)00 48 45.0 iS 49 07.0	e(P)00 48 41.9 iS 49 02.0	eP 00 48 39.1 i 48 39.6 iS 48 57.1	iP 00 48 33.8 iS 48 48.1		iP 00 49 10.0
638			e(P)03 28 16.9 e(S) 39.1	e(P)03 28 16.0 eS 28 36.4	iP 03 28 09.5 e(S) 28 24.1	eP 03 28 07.2 iS 28 20.4		
					DILAT			
		eP 06 48 07.0 e(S) 48 37.5	eP 06 47 58.5 iS 48 23.2	e(P)06 47 56.1 e(S) 48 21.0	iP 06 48 46.0 e(S) 48 59.5	eP 06 47 47.7 iS 48 04.7		
					COMP			
639		iP 11 46 02.1 iS 46 06.8	iP 11 46 10.0 iS 46 21.1	e(P)11 46 09.6 i 46 11.4 iS 46 21.0	iP 11 46 12.3 iS 46 30.1	eP 11 46 23.9 eS 46 44.6		
		COMP	COMP	COMP				
			e(P)16 29 19.1 eS 29 45.2	eP 16 29 20.0 iS 29 48.5	iP 16 29 05.4 iS 29 23.2 i 29 24.2	eP 16 29 11.3 i 29 11.7 iS 29 32.6		
					COMP			
		eP 21 52 49.9 iS 53 09.6	eP 21 51 36.9 i(S) 52 54.1	iP 21 52 43.4 i(S) 53 07.7	eP 21 52 28.0 e(S) 52 38.7	iP 21 52 40.7 i(S) 52 57.4 i 53 02.1	eP 21 52 31	iP 21 53 23.3 iS 54 15.7
			COMP	COMP	DILAT			
640		iP 22 07 44.0 iS 08 20.5	iP 22 07 46.1 S SAT	iP 22 07 38.0 iS 08 10.5	iP 22 07 48.2 i(S) 08 29.4	iP 22 07 38.1 iS 08 10.3		
			DILAT	DILAT	(COMP)	COMP		

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Hoja de datos N° 13

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
641	25/11	eP 04 36 25.2 iS 36 57.2	eP 04 36 10.1 iS 36 29.4	iP 04 36 14.8 i(S) 36 37.3	iP 04 38 ⁵ 49.5 i(S) 36 32.7	iP 04 36 06.7 i(S) 36 25.4		eiP 04 37 04.0 S 38 04.2
			COMP	COMP	DILAT	DILAT		
642			e(P)06 18 26.6 eS 18 50.3	e(P)06 18 27.7 e(S) 18 52.9	eP 06 17 13.6 e(S) 17 28.2	eP 06 18 19.2 i(S) 18 38.3		
					COMP			
643		eP 08 52 22.9 eS 52 44.3		iP 08 52 12.7 iS 52 27.6	i(P)08 52 19.6 e(S) 52 39.0	eP 08 52 11.0 iS 52 23.7		
644		e(P)20 18 20.8 eS 18 48.1	iP 20 18 10.5 i(S) 18 33.5	eP 20 18 08.8 iS 18 30.3	iP 20 18 01.8 i(S) 19.9	iP 20 18 00.1 i(S) 18 15.4		
			DILAT	DILAT	COMP	DILAT		
645		iP 20 29 23.7 i(S) 29 43.9	iP 20 29 10.7 SAT	e(P)20 29 18.2 eS 29 34.2	i(P)20 29 13.7 i(S) 25.7	iP 20 29 19.5 i(S) 29 38.3		
			COMP			COMP		
			e(P)20 31 49.6 iS 32 38.7	iP 20 31 57.7 iS 32 56.0	e(P)20 31 40.8 e(S) 32 20.3 i 32 22.0	iP 20 31 54.5 iS 32 49.4	(P) 20 31 44.5 i 53.3 S 32 40.0	iP 20 31 16.4 iS 40.0
				(COMP)		COMP		
			eP 22 37 33.2 eS 38 32.5	eP 22 37 39.5 eS 38 43.9 i 38 45.6	e(P)22 37 12.1 e(S) 37 54.7	e(P)22 37 33.2 e(S) 38 31.3	P 22 36 51.3 S 37 18	iP 22 36 44.2 iS 37 07.1
			COMP					
646	26/11	eP 01 43 25.8 eS 43 46.3	iP 01 43 19.4 iS 43 34.9	iP 01 43 16.2 iS 43 29.0	iP 01 43 20.4 i(S) 43 36.9 i 43 38.7	iP 01 43 13.8 e(S) 43 24.8 i 43 26.5		
		(DILAT)	DILAT	DILAT		COMP		
			eP 03 04 45.2 iS 05 04.6	eP 03 04 50.7 iS 05 12.4	iP 03 04 25.0 i(S) 04 33.3 DILAT	eP 03 04 41.2 e(S) 04 56.4 i 04 57.8		

MES Noviembre AÑO 1964 Hoja de datos N° 14

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
	26/11	eP 07 22 06.6 i(s) 22 43.4	eP 07 21 51.2 i 21 52.8 i(s) 22 08.1 i 22 13.5	e(P)07 21 54.8 i(s) 22 18.6 i 22 20.1	iP 07 21 37.2 i(s) 21 46.3	iP 07 21 47.3 i(s) 22 03.7 i 22 05.9 i 22 08.5 i 22 10.3	P 07 22 40.5	iP 07 22 49.4 iS 23 37.5
			COMP	COMP	DILAT	DILAT		
		eP 08 50 11.2 eS 50 31.9	e(P)08 50 16.1 e(S) 50 39.9 i 50 46.7	eP 08 50 07.0 iS 50 27.0	e(P)18 50 25.2 e(S) 50 56.2 i 51 02.4	iP 08 50 13.7 eS 50 37.7		
		DILAT		COMP				
		e(P)09 32 23.5 e(S) 33 25.4	eP 09 32 10.1 e(S) 32 57.8	e(P)09 32 16.3 e(S) 33 11.7	eP 09 32 59.2 e(S) 33 29.9	e(P)09 32 08.0 e(S) 32 57.7	iP 09 31 40.0 S 32 07.0	iP 09 31 42.1 iS 32 10.0
647			eP 12 21 31.4 i(s) 22 02.1	e(P)12 21 34.1 e(S) 22 08.0	eP 12 21 14.2 eS 21 31.8	eP 12 21 23.5 iS 21 49.0		
648			e(P)18 02 54.4 eS 03 18.1	e(P)18 03 08.8 eS 03 31.7 i 03 32.2	iP 18 02 43.8 i(S) 02 59.3	iP 18 02 44.8 iS 03 00.8		
					DILAT	COMP		
			eP 18 31 50.8 i 32 51.3 iS 32 21.5	eP 18 31 48.1 iP 31 48.4 i(s) 32 21.3 i 32 22.0	iP 18 31 42.7 i(s) 32 24.0	iP 18 31 32.0 iS 32 05.3		
			DILAT	DILAT	COMP	DILAT		
649			eP 20 34 01.2 iS 34 22.1	eP 20 33 58.7 i 33 59.1 iS 34 18.8	iP 20 33 54.5 i(s) 33 11.4	eP 20 33 50.1 i 33 50.5 i(s) 34 03.1		
					(COMP)			
650			iP 20 49 28.1 iS 50 06.9	iP 20 49 21.3 i(s) 49 53.7	iP 20 49 27.3 i(s) 50 03.5	iP 20 49 17.4	iP 20 50 18.5 S 51 35	eP 20 50 31.1 iS 51 58.6
			DILAT	DILAT	COMP			

MES Noviembre AÑO 1964 Hoja de datos Nº 15

Nº orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
	27/11	iP 10 59 53.7 iS 11 00 29.1 COMP DEL E	iP 10 59 55.6 i(s)11 00 33.1 DILAT			iP 10 59 47.3 iS 11 00 16.8 DILAT	P 11 00 56.0	iP 11 01 06.1 iS 02 40.4
	28/11		iP 10 52 03.6 iS 52 30.0 COMP	(S-P)=25.8		iP 10 51 53.8 iS 52 12.4 DILAT	e(P)10 52 47	eP 10 53 14.2 eS 53 55.0
651		iP 16 44 48.9 eS 47 25.2 e 51 40.9 COMP DEL N	iP 16 44 38.9 S SAT COMP	e(P)16 44 38.9 e(S) 47 16.0		eP 16 44 39.3 i 44 39.7 i 44 40.9 eS 47 10.1 i 47 23.1	iP 16 43 47.4 45 34	iP 16 43 40.0 iS 45 20.0
652		iP 16 52 44.9 eS 55 20.7 e 59 36.8 COMP DEL N				eP 16 52 35.3 i 52 35.8 i 52 36.6 eS 55 06.3 i 55 18.5	iP 16 51 43.2 iS 53 30	iP 16 51 35.8 iS 53 17.0
		eP 19 41 08.8 eS 41 51.6				iP 19 40 49.2 iS 41 18.2		eP 19 41 40.5 iS 42 48.0
653		eP 23 07 17.6 eS 07 46.4	eP 23 07 06.8 iS 07 31.7	eP 23 07 06.3 i 07 06.5 iS 07 30.5		iP 23 06 57.4 iS 07 15.0		
			DILAT	COMP		COMP		
654	29/11	iP 22 55 50.0 iS 56 41.8 DILAT	iP 22 55 44.5 iS 56 33.0 DILAT	iP 22 55 40.3 eS 56 24.9 DILAT		e(P)22 55 33.4 e(S) 56 15.0		eiP 22 56 27.0 iS 57 48.8
655	30/11	eP 03 11 49.5 e(S) 12 21.2	eP 03 11 38.9 iS 12 06.1 DILAT	eP 03 11 39.0 iS 12 07.6		iP 03 11 30.4 eS 11 51.3 DILAT		

MES Noviembre AÑO 1964

Hoja de datos N° 16

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
	30/11	e(P) 07 00 24.4 e(S) 00 52.9 COMP	iP 07 00 12.9 iS 00 38.0 (COMP)			iP 07 00 08.3 iS 00 32.1 COMP	eP 07 00 39	eF 07 00 41.0 iS 01 36.5
656		iP 10 32 55.1 eS 33 13.6 COMP DEL NE	iP 10 32 51.9 iS 33 08.2 DILAT			iP 10 32 47.9 i(s) 33 01.0 COMP		

DETERMINACION PROVISORIA DE EPICENTROS. RED ANDES
PROGRAMA SISMOLOGICO. UNIVERSIDAD DE CHILE - ANTOFAGASTA

BOLETIN N° 18 - NOVIEMBRE DE 1964

Las coordenadas de las estaciones de la Red son:

ANT	ANTOFAGASTA	23° 42' 18" S	70° 24' 55" W	80 m
MIC	MICHILLA	22° 42' 23" S	70° 16' 01" W	100 m
SIN	SALINAS	23° 09' 14" S	69° 36' 40" W	1.350 m
QUL	QUILLAGUA	21° 39' 20" S	69° 31' 42" W	800 m
CAC	CALAMA	22° 28' 47" S	69° 01' 34" W	2.000 m
TCN	TOCONCE	22° 16.5' S	68° 10.3' W	3.300 m
LPB	LA PAZ	16° 31' 57.6" S	68° 05' 54.1" W	3.292 m

La estación de Toconce empezó a funcionar en 1965 y la de Ollagüe, en 1966.

Como chequeo del valor y la correspondencia de los tiempos se utiliza los gráficos S-P vs. P y/o S-P vs. S. La determinación de los hipocentros se ha hecho con el computador mecánico analógico al cual se le introducen las velocidades "medias" calculadas de las Tablas Jeffreys-Bullen (1958); en lo fundamental, se aprovecha la diferencia S-P comprobando y ajustando con los datos P.

En general, el error de las diferencias S-P es del orden de los $\pm 0,2$ seg.; el de los tiempos de llegada a la estación Antofagasta, de $\pm 0,2$ seg., y el de los tiempos de llegada a las restantes estaciones, de $\pm 0,5$ seg. Todo lo anterior, según la apariencia general de los gráficos de corrección de hora e implicando buena definición de las fases.

La numeración (N° orden) es correlativa a partir del Boletín N° 1.

El error de la hora origen se obtiene calculando la desviación standard con respecto a la hora origen, a su vez valor promedio compensado según los datos de los tiempos de llegada de P.

El error de las coordenadas es estimativo, tomando en cuenta la calidad de la solución.

Se menciona las estaciones usadas en el cálculo por medio de las iniciales de cada una de ellas.

El paréntesis indica dato dudoso.

Se agrega los datos de las tarjetas "PRELIMINARY DETERMINATION OF EPI-CENTERS" de la USCGS para sismos con suficiente información de la Red; además, los tiempos registrados en Arequipa y La Paz que también se usan en los cálculos aunque, para sismos en la zona misma de la Red y al sur de ella, presentan desviaciones sistemáticas por lo que, en estos casos, no se les da peso.

MES Noviembre AÑO 1964 Hoja de datos N° 1

N° orden	Fecha	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
	<i>1/11</i>	eP 01 52 05 e(S) 52 33	eP 01 50 55.5 iS 51 18.4	eP 01 51 53.2 iP 51 59.4 eS 52 24.4 iS 52 27.0	iP 01 51 41.8 i(S) 52 18.7	iP 01 51 50.8 iS 52 12.7		
			COMP		COMP	COMP		
566			e(P)02 17 44.9 e(S) 18 05.1	eP 02 17 43.7 eS 18 13.2	iP 02 17 27.7 iS 17 43.4	iP 02 17 36.2 iS 17 58.5		
					DILAT	DILAT		
		eP 02 24 41.0 eS 24 51.9	e(P)02 25 55.6 e 26 09.2 i 26 22.1	eP 02 24 50.0 eS 25 13.0		e(P)02 25 03.4 i 25 18.0 i 25 37.0		
567		eP 02 37 08.8 e(S) 37 43.3	iP 02 37 10.9 eS 37 47.9	iP 02 37 03.7 i(S) 37 34.2		e(P)02 37 03.7 eS 37 34.8		
			COMP					
568	<i>1/11</i>	eP 07 05 26.7	iP 07 05 16.2 eS 05 38.9		iP 07 04 06.5 i(S) 04 21.5	iP 07 05 05.5 iS 05 20.0		
			COMP		COMP	DILAT		
569	<i>3/11</i>	eP 08 02 22.7 iS 02 39.0	iP 08 02 28.9 i(S) 02 52.3		iP 08 02 38.6 i(S) 03 11.1	eP 08 02 27.9 i 02 28.5 i(S) 02 49.5		
		COMP. DEL SE				COMP		
		eP 09 09 32.0	e(P)09 09 22.1 e(S) 09 51.4		iP 09 09 11.1 iS 09 29.8	iP 09 09 11.0 iS 09 28.8		
					DILAT	DILAT		
570		iP 18 03 33.3 iS 04 15.4	iP 18 03 31.8 i 03 33.0 iS 04 12.2 i 04 13.6		iP 18 03 28.4 i 03 29.3 i(S) 04 07.6	eP 18 03 20.4 iS 03 52.5	P 18 04 15	
		COMP, DEL E	DILAT		COMP	DILAT		

MES Noviembre AÑO 1964

Hoja de datos N° 2

N° orden	FECHA	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	LA PAZ LPB	AREQUIPA ARE
571	4/11	eP 02 12 25.3 i 12 26.7 e(S) 13 06.0	eP 02 12 14.6 i 12 17.0 i 12 25.1 S SAT COMP		eP 02 12 00.0 i 12 01.4 S SAT	eP 02 12 11.4 iP 12 13.9 S SAT	iP 02 12 20.5	iP 02 12 23.3 i(S) 13 04.2
572		eP 06 01 18.5 iS 02 09.1 COMP DEL E	iP 06 01 11.9 i 01 13.6 iS 01 56.4 i 01 58.4 COMP		e(P)06 01 59.8 i(S) 02 36.6	iP 06 00 59.3 iS 01 35.5 COMP	P 06 01 24	iP 06 01 43.5 iS 02 53.0
		eP 10 18 17.2 eS 18 43.7	eP 10 18 06.1 i 18 10.0 eS 18 28.5 i 18 28.7 i 18 31.5 COMP		iP 10 18 51.7 i(S) 19 11.4 COMP	iP 10 18 00.4 iS 18 22.3 COMP	P 10 18 40.0	iP 10 18 42.0 iS 19 34.1
573	5/11	eP 01 26 56 iS 27 26	e(P)01 26 45.5 eS 27 10.0	eP 01 26 44.9 i 26 45.1 eS 27 11.4 i 27 11.8	i(P)01 26 31.9 i(S) 26 47.1	iP 01 26 37.1 iS 26 56.2 DILAT		
574		iP 06 09 41 iS 10 21 COMP DEL SSE	iP 06 09 40.9 e(S) 10 18.8 DILAT	iP 06 09 32.7 i(S) 10 07.1 DILAT	i(P)06 09 39.1 i(S) 10 17.2	eP 06 09 30.2 i 09 30.8 iS 10 02.1 DILAT		eP 06 10 42.2 iS 12 11.0
575		eP 07 10 53.0 eS 11 22.0	eP 07 10 56.6 eS 11 29.6 DILAT	eP 07 10 46.7 e(S) 11 12.8 i 11 13.6		iP 07 10 49.9 iS 11 17.3		
576		iP 10 41 35.3 iS 42 00.1 DILAT DEL E	iP 10 41 44.3 i 41 45.3 i(S) 42 14.7 DILAT	iP 10 41 36.2 i(S) 42 04.2	iP 10 41 55.1 i(S) 42 36.1 COMP	eP 10 41 44.5 i 41 44.8 iS 42 17.9		iP 10 43 06.0 iS 44 42.5

MES Noviembre AÑO 1964 Hoja de datos N° 3

N° orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
577	6/11		iP 07 54 57.2 i 54 59.6 i 55 01.6 i(s) 55 07.5	iP 07 55 05.9 i(s) 55 21.5	iP 07 55 01.0 i(s) 55 14.7 i 55 22.2	eP 07 55 07.6 i(s) 55 24.0	P 07 56 23	eP 07 56 07.0 iS 57 10.8
			DILAT	COMP		COMP		
578			iP 14 20 44.3 iS 21 04.9	eP 14 20 41.5 i 20 42.2 iS 21 00.4	iP 14 20 36.5 i(s) 20 50.5	iP 14 20 33.5 iS 20 45.8		
			DILAT			COMP		
579		iP 16 30 13.7 iS 30 57.7	iP 16 32 05.9 i(s) 32 44.0		eP 16 31 54.2 i 31 54.5 iS 32 25.3	iP 16 31 54.2 iS 32 23.4	iP 16 32 25.8 S 33.2	iP 16 32 41.5 iS 33 46.5
		COMP DEL NE	DILAT					
580	7/11		e(P)00 47 50.4 i(s) 48 15.2	e(P)00 47 50.3 eS 48 15.6	iP 00 47 37.0 iS 47 52.2	iP 00 47 41.3 iS 48 00.3		
			(DILAT)					
581		eP 05 01 37.1 iS 02 08.1	iP 05 01 25.9 i 01 28.0 eS 01 45.7 i 01 46.8	e(P)05 02 23.3 eS 02 42.2	e(P)05 01 10.9 i(s) 01 20.1	iP 05 01 08.8 iS 01 17.1		
			COMP			DILAT		
582		iP 09 22 33.3 i(s) 22 48.1	iP 09 22 36.4 i(s) 22 52.4	iP 09 22 27.8 i(s) 23 12.4	iP 09 22 46.8 i(s) 23 14.1	P 09 22 36.1 i(s) 22 52.0	eP 09 24 20	eP 09 24 03.2 iS 25 11.4
		COMP DEL SSE	DILAT	DILAT	COMP	COMP		
583	8/11	eP 16 41 40.5 eS 42 19.6	eP 16 41 34.0 i 41 35.6 iS 42 09.2		eP 16 41 24.6 i 41 25.1 i(s) 55.2	iP 16 41 20.9 i 41 28.8 iS 41 47.7	iP 16 42 08 S 43 11	iP 16 42 21.1 iS 43 35.0
			COMP		DILAT			
		eP 22 40 09.9 e 40 11.0 e(s) 40 40.6	eP 22 39 58.3 i 40 01.1 i(s) 40 24.4	eP 22 39 57.2 iS 40 23.6		iP 22 39 47.6 i(s) 40 07.2 i 40 07.7	P 22 40 39	eP 22 40 51.0 e 41 49.0
			COMP			DILAT		

MES Noviembre AÑO 1964 Hoja de datos N° 4.

N° orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QLL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
	8/11	eP 23 28 43.3 e(S) 29 09.8	iP 23 28 33.5 i 28 34.1 iS 28 57.6	iP 23 28 31.1 iS 28 54.1		iP 23 28 22.1 iS 28 38.2	eP 23 29 33	
			DILAT			DILAT		
584	9/11	iP 04 22 49.7 e(S) 23 38.3 i 23 39.7	iP 04 22 46.0 i 22 47.3 eS 23 33.2	iP 04 22 40.4 i(S) 23 23.6		iP 04 22 33.8 iS 23 12.5	iP 04 23 14.5 S 24 23	iP 04 23 32.1 iS 24 56.0
		COMP DEL NE	DILAT	COMP		DILAT		
		eP 09 05 49.7 e 06 09.5 eS 06 31.4	iP 09 05 49.9 i 05 50.9 i(S) 06 03.6	eP 09 05 56.6 i(S) 06 18.1		iP 09 05 54.7 iS 06 15.8	eL 09 07	
			DILAT			COMP		
585		eP 14 16 50.2 e(S) 17 22.5	eP 14 16 40.7 iS 17 08.6	eP 14 16 39.9 eS 17 08.7		iP 14 16 31.0 iS 16 52.9		
			COMP			DILAT		
		eP 18 50 04.1 i 50 23.9 i(S) 50 35.9	eP 18 49 51.3 i 49 52.4 i(S) 50 11.6	eP 18 49 51.1 i 49 52.1 iS 50 11.8 i 50 14.0	i(P) 18 49 40.2	iP 18 49 42.1 iS 49 57.0	eP 18 50 36	i(P) 18 50 52.0 iS 51 45.0
			COMP			DILAT		
586			iP 20 20 38.2 eS 21 01.6	eP 20 20 36.6 e(S) 20 59.7 i 21 00.0	iP 20 20 27.3 i(S) 20 43.3	iP 20 20 27.1 iS 20 42.7		
			DILAT			DILAT		
587	10/11	eP 00 25 52.2 i 25 53.2 iS 26 13.2	iP 00 25 44.3 iS 25 59.4	iP 00 25 42.3 i(S) 25 57.1	iP 00 25 40.4 i(S) 25 53.9	iP 00 25 37.1 i 40.9 iS 51.2	eP 00 27 07	
			DILAT	DILAT	DILAT	COMP		
588		iP 04 17 52.4 iS 18 28.9	iP 04 17 55.5 eS 18 32.8 i 18 34.5	iP 04 17 46.8 iS 18 19.4	eP 04 17 58.1 i(S) 18 37.2	eP 04 17 47.6 iS 18 20.6	eP 04 18 57 (S) 20 25	eP 04 19 07.0 iS 41.7
		COMP DEL E	DILAT	DILAT	(COMP)	DILAT		

MES Noviembre AÑO 1964 Hoja de datos N° 5.

Nº Orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
	10/11	e(P)09 01 00.9 eS 01 53.9	e(P)09 00 46.0 i 00 46.7 i(S) 01 22.0	e(P)09 00 49.1 e(S) 01 30.1	eP 09 00 30.5 i 00 30.9 i(S) 00 51.8	e(P)09 00 42.0 e(S) 01 13.7	P 09 01 06 S 01 55	iP 09 01 02.0 iS 59.3
589		eP 10 00 58.2 eS 01 32.6 DILAT	e(P)10 01 01.5 iS 01 38.3	eP 10 00 52.5 eS 01 23.6	e(P)10 01 03.6 iS 01 44.4	e(P)10 00 52.9 e(S) 01 25.0		
590			e(P)19 13 55.7 e 14 03.0 e(S) 14 14.1	iP 19 13 48.2 iS 14 01.7	eP 19 14 58.3 eS 15 17.9	iP 19 13 47.1 iS 13 58.9		
				DILAT		COMP		
591			e(P)20 16 18.4 iS 16 44.1	e(P)20 16 17.7 eS 16 43.6	iP 20 16 04.2 i(S) 16 20.3	iP 20 16 08.7 iS 16 28.0		
					DILAT	COMP		
592	11/11	eP 02 01 39.9 eS 02 16.0	iP 02 01 42.6 iS 02 20.3	iP 02 01 33.9 iS 02 06.0	eP 02 01 44.5 eS 02 24.8	eP 02 01 34.0 i 34.3 eS 02 07.0		
				DILAT	DILAT	COMP		
593		eP 02 19 02.1 eS 19 31.6	eP 02 18 46.9 iS 19 04.3	eP 02 18 50.6 eS 19 11.5	iP 02 18 26.5 i(S) 18 29.6	eP 02 18 42.8 iS 18 56.3		
			DILAT	DILAT		DILAT		
				eP 11 11 21.3 iS 11 48.6	e(P)11 12 10.5 eS 12 25.0	iP 11 11 19.2 e(S) 11 32.7		iP 11 11 24.7 iS 33.7
						DILAT		
594		iP 13 53 05.7 iS 53 19.6		iP 13 53 07.3 i(S) 53 22.0	i(P)13 53 28.7 i(S) 01.9	eP 13 53 17.5 i 53 17.8 iS 53 40.8		
		COMP DEL ENE						

MES Noviembre AÑO 1964 Hoja de datos N° 6

Nº orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
	11/11		eP 22 33 25.4 eS 33 50.7	e(P)22 33 24.7 iS 33 52.7	iP 22 33 10.6 i(S) 33 29.0 i 33 29.8	iP 22 33 15.8 i(S) 33 37.5		
					COMP	DILAT		
	12/11	eP 00 04 43.4 eS 04 49.5	eP 00 04 48.9 iS 04 59.4	e(P)00 04 43.9 e(S) 04 51.0		e(P)00 04 58.9 e(S) 05 17.4		
595		eP 05 09 46.3 e 10 26.1	iP 05 09 48.0 e(S) 10 27.7	eP 05 09 34.5 i 09 39.8 iS 10 14.5	i(P)05 09 47.8 iS 10 29.2	eP 05 09 38.6 i 09 38.9 iS 10 12.8		
			COMP	DILAT	DILAT			
596		eP 06 00 06.3 i 00 06.7 eS 00 43.3	e(P)06 00 09.0 iS 00 46.0	iP 05 59 00.2 iS 32.7		e(P)06 00 00.3 e(S) 00 32.1	iP 06 01 34.7 eS 50.0	
597		eP 06 45 35.3 eS 46 12.7 iS 46 14.1	eP 06 45 37.4 iS 46 16.2 i 46 18.0	iP 06 45 28.9 iS 46 03.1	i(P)06 45 37.2 e(S) 46 18.6	eP 06 45 28.0 iS 46 01.4		
					DILAT			
		eP 12 14 51.2 iS 15 49.0	eP 12 14 38.5 i 15 38.8 i(S) 15 26.7	iP 12 14 45.3 i 14 45.6 iS 15 39.5	e(P)12 14 35.0 iS 15 24.8	eP 12 14 40.2 i 14 42.6 i 14 51.6	iP 12 14 23.2 S 14 44.0	iP 12 14 10.3 iS 14 28.2
			COMP					
			eP 15 12 24.1 e(S) 13 33.3	e(P)15 12 30.1	e(P)15 12 07.4 e 12 13.3 e(S) 13 12.4	eP 15 12 02.7 i(S) 13 11.0	P 15 11 40.0 S 12 17.0	iP 15 11 13.2 iS 11 28.8
		e(P)21 18 53.4 i 18 59.2 i(S) 19 46	eP 21 18 41.3 i(S) 06.4	eP 21 18 44.7 i(S) 19 09.7 i 20.8	i(P)21 18 26.1	eP 21 18 37.2 i 18 50.9 i(S) 19 05.9 i 19 13.7	iP 21 18 55.0	iP 21 18 59.4 iS 19 46.6
			COMP					

MES Noviembre AÑO 1964 Hoja de datos Nº 7

Nº orden	FECHA	ANTOFAGASTA ANT	MICHILLA MIC	SALINAS SLN	QUILLAGUA QUL	CALAMA CAC	LA PAZ LPB	AREQUIPA ARE
	13/11	eP 00 27 03.6 eS 27 15.3	e(P)00 27 18.7 iS 27 46.1	e(P)00 27 13.0 i(S) 27 35.2		eP 00 27 25.4 i 27 40.6 i(S) 27 59.6		
598		eP 01 53 32.6 eS 53 50.2	eP 01 53 18.4 iS 53 24.5	iP 01 53 27.4 iS 53 40.4		eP 01 53 30.9 i 53 31.4 i(S) 53 45.1		
			DILAT	COMP		DILAT		
599			e(P)02 54 37.3 e(S) 55 02.2 e 55 05.8	iP 02 54 36.4 iS 55 04.6	iP 02 54 22.6 iS 54 39.6	iP 02 54 27.9 iS 49.1		
				DILAT	COMP	DILAT		
600			iP 03 11 54.3 iS 12 17.6	eP 03 11 52.5 eS 12 15.4	eP 03 11 45.6 iS 12 03.1	iP 03 11 43.4 iS 11 59.2		
			COMP	COMP		COMP		
601		eP 07 30 46.1 eS 31 17.6	eP 07 29 48.4 iS 30 22.8	e(P)07 30 40.4 e(S) 31 08.0 e 31 09.1	S-P=36.5	e(P)07 30 41.9 e(S) 31 09.7		
			COMP					
602		eP 10 08 26.6 i 08 27.9 e(S) 08 52.0	eP 10 08 20.7 i(S) 43.6	iP 10 08 15.5 iS 08 34.8	S-P=20.8	eP 10 08 09.7 i 08 10.0 iS 08 24.3	eP 10 08 09.8 iS 28.9	
			COMP	COMP	DILAT	COMP		
603		eP 13 18 21.9 eS 18 47.9	iP 13 18 13.1 iS 18 35.6	iP 13 18 11.1 iS 18 32.5	(S-P)=17.7	iP 13 18 03.0 i(S) 18 21.3		
			COMP	COMP		DILAT		
604		e(P)14 06 54.7 eS 07 29.3	eP 14 06 43.4 iS 07 10.7	eP 14 06 42.8 i 06 44.0 iS 07 11.8	(S-P)=18.1	iP 14 06 34.5 iS 06 54.8	eP 14 07 19 iP 14 07 32.4 iS 08 29.5	
					DILAT	DILAT		

MES Noviembre AÑO 1964 Hoja de datos N° 8

N° order	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
	13/11		iP 23 21 52.8 iS 22 16.2		S-P=15.8	eP 23 21 46.0 iS 22 04.3		eiP 23:23 38.5 iS 42.7
			COMP		DILAT	COMP		
605		eP 23 25 38.6 i 26 02.8	iP 23 25 30.9 i(S) 25 49.9		S-P=15.8	iP 23 25 22.1 iS 25 33.7		
					DILAT	DILAT		
606	14/11	iP 03 34 16.0 eS 34 57.4	iP 03 34 11.1 i(S) 34 46.3		(S-P)=35.6	iP 03 34 01.1 i(S) 34 31.6	P 03 34 54 S 36 08	eP 03 35 08.5 iS 36 32.2
		COMP DEL ENE	DILAT			DILAT		
607	1	eP 21 01 11.0 eS 01 37.3		iP 21 01 59.2 iS 01 21.3	S-P=16.6	iP 21 00 49.9 iS 01 04.9		
				COMP		DILAT		
608	15/11	iP 23 34 25.9 iS 34 42.2	iP 23 34 26.5 iS 34 44.7	iP 23 34 18.9 i(S) 34 31.1	(S-P)=24.9	iP 23 34 24.5 i(S) 34 39.6		
			DILAT	DILAT	COMP	(COMP)		
609		eP 23 55 25.5 eS 55 57.8	iP 23 55 20.1 iS 55 48.6	iP 23 55 14.8 e(S) 55 40.0		iP 23 55 08.9 iS 55 29.2		
				DILAT		DILAT		
610	16/11		eP 06 32 52.8 eS 33 18.2 i 33 19.7	e(P)06 33 56.6 e(S) 34 25.8	S-P=16.9	iP 06 33 48.1 iS 34 11.7		
					DILAT	DILAT		
611		iP 06 41 27.6 iS 41 35.2	iP 06 41 38.1 iS 44 54.0	iP 06 41 37.8 iS 41 53.4	S-P=29.6	iP 06 41 50.1 iS 42 14.8	P 06 43 02.8 L 52.5	eP 06 43 04.4 iS 44 26.0
			COMP	COMP	COMP	COMP		
612	17/11	e(P)00 38 23.3 eS 39 05.8	eP 00 38 14.5 iS 38 51.8		(S-P)=29.0	eP 00 38 03.5 iS 38 33.2		
						COMP		

MES Noviembre AÑO 1964 Hoja de datos Nº 9

Nº orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
613	17/11		eP 02 44 45.2 eS 45 06.0	eP 02 44 41.6 iS 44 58.9	(S-P)=18.6	iP 02 44 35.7 iS 44 48.1		
			COMP			DILAT		
614		e(P)21 02 27.6 eS 02 49.1	iP 21 02 23.9 iS 02 42.3	iP 21 02 19.3 iS 02 32.5		iP 21 02 17.7 iS 02 29.8		
			DILAT	COMP		COMP		
615	18/11		e(P)03 52 40.1 e(S) 53 04.0	e(P)03 52 41.1 e(S) 53 05.8	(S-P)=14.8	e(P)03 52 32.8 eS 52 50.8		
		eP 08 00 41.5 i(S) 01 21.0	iP 08 00 42.9 iS 01 21.7	eP 08 00 35.4 i 00 36.7 eS 01 09.2 i 01 10.1		e(P)08 00 35.0 e(S) 01 08.6		
			COMP	COMP				
616	19/11		iP 02 50 00.8 iS 50 23.3	eP 02 50 01.1 eS 50 23.6	eP 02 49 50.3 eS 50 04.3 i 50 04.8	iP 02 49 51.3 iS 50 06.7		
			COMP	DILAT		DILAT		
617		eP 04 21 51.6 eS 22 43.4	iP 04 21 42.7 iS 22 27.7	eP 04 21 42.1 i 21 42.8 iS 22 26.8	e(P)04 21 31.4 i(S) 22 08.0	e(P)04 21 31.5 e(S) 22 10.5	iP 04 21 47.0 S 22 35	iP 04 22 07.3 iS 23 13.3
			DILAT	COMP				
618		eP 07 31 40.2 iS 32 16.0	iP 07 31 41.7 i(S) 32 21.0	eP 07 31 34.1 iP 31 34.3 eS 32 06.3	eP 07 31 43.7 i(S) 32 04.1	eP 07 31 33.3 iS 32 05.4		
			COMP		DILAT	COMP		
619		e(P)08 29 55.3	e(P)08 29 40.9 i(S) 30 10.0	e(P)08 29 43.2 i 29 44.8 e(S) 30 15.8	iP 08 29 23.6 iS 29 38.8	iP 08 29 33.5 iS 29 56.6		iP 08 30 23.0 iS 31 11.0
					DILAT	DILAT		
620		e(P)10 11 26.0 eS 11 49.0	iP 10 11 17.0 i(S) 11 35.0	iP 10 11 14.7 iS 11 31.4	iP 10 11 12.2 i(S) 11 27.7	iP 10 11 05.8 iS 11 16.4		
			DILAT	DILAT	DILAT	DILAT		

MES Noviembre AÑO 1964 Hoja de datos N° 10.

N° orden	FECHA	ANT ANTOFAGASTA	MIC MICHILLA	SLN SALINAS	QUL QUILLAGUA	CAC CALAMA	LPB LA PAZ	ARE AREQUIPA
621	19/11		iP 15 20 10.7 iS 20 46.5	iP 15 20 07.6 iS 20 41.8	e(P)15 20 01.8 i(S) 20 32.5	eP 15 19 58.2 i 19 59.7 iS 20 26.6	eP 15 20 41 S 21 43	
			DILAT					
622	20/11	eP 22 07 34.0 i 07 35.9 iS 07 56.5	iP 22 07 27.2 S SAT	iP 22 07 24.0 i(S) 07 34.1	i(P)22 07 22.8	iP 22 07 18.5 i(S) 07 25.5	eP 22 08 32	iP 22 08 43.1 iS 09 02.5
			DILAT	DILAT	DILAT	COMP		
623		iP 06 03 58.3 eS 04 38.5		eP 06 03 51.7 iS 04 27.6	iP 06 04 59.3 eS 04 40.2	eP 06 03 48.7 iS 04 23.2		
				COMP	DILAT	COMP		
624		e(P)19 27 09.4 eS 27 39.0 i 27 40.7	eP 19 27 03.9 eS 27 29.8		iP 19 27 59.9 iS 27 23.0	iP 19 26 52.4 iS 27 10.3		
					DILAT	DILAT		
625	21/11	eP 20 04 35.3 eS 05 12.6	iP 20 04 37.0 e(s) 05 15.5		iP 20 04 39.0 e(s) 05 19.3	iP 20 04 28.4 iS 05 00.5		
			COMP			COMP		
626		iP 09 24 51.6 iS 24 56.7	e(P)09 25 06.6 i 25 07.3 iS 25 23.2	eP 09 25 04.2 eS 25 18.9 i 25 20.4		iP 09 24 18.8 e(S) 25 44.6		
		DILAT	DILAT	DILAT		DILAT		
625		iP 11 57 25.5 i(s) 57 55.1	iP 11 57 12.6 iS 57 34.6	iP 11 57 21.2 i 57 37.1 i 57 42.9	iP 11 57 06.7 i(S) 57 28.6	iP 11 57 19.8 i(S) 57 45.7	P 11 58 07 (S) 59 05 (S) 59 07	iP 11 57 56.0 S 58 44.6
			COMP	DILAT	COMP	DILAT		
626			iP 12 49 14.4 iS 49 37.7	eP 12 49 12.0 i 49 13.5 iS 49 34.0	eP 12 49 06.5 i(S) 49 24.1	eP 12 49 03.4 i 49 03.9 i(S) 49 18.5		
			DILAT		COMP	COMP		

MES Noviembre AÑO 1964 Hoja de datos Nº 11

Nº orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
627	21/11	eP 12 51 40.2 eS 52 14.8	iP 12 51 41.1 eS 52 19.1 i 52 20.4 COMP	eP 12 51 33.9 iS 52 04.5		iP 12 51 34.4 e(S) 52 05.9		
			DILAT	DILAT		DILAT		
628		eP 14 04 11.4 i(S) 04 48.6	eP 14 04 04.7 i 04 06.4 i(S) 04 32.2	eP 14 04 00.3 iP 04 01.6 iS 04 27.1 COMP	iP 14 03 46.2 i(S) 03 59.1	iP 14 03 51.3 i(S) 04 10.9	P 14 04 40	iP 14 05 45.6 e 06 03.7
			DILAT	COMP	COMP	DILAT		
629		eP 15 26 41.2 eS 26 59.2	e(P) 15 26 39.9 iS 26 56.9	iP 15 26 32.4 iS 26 44.2	iP 15 26 45.4 e(S) 27 08.3	iP 15 26 35.0 iS 26 48.2		
			DILAT	DILAT	DILAT	COMP		
630	22/11	iP 05 25 04.6 iS 25 44.4		(S-P)=33.3	iP 05 25 00.4 S SAT	iP 05 24 52.1 i(S) 25 21.0	P 05 25 49.0 S 27 03	eiP 05 26 02.1 iS 27 23.9
			DILAT	DILAT	COMP	DILAT		
631		eP 08 09 45.3 iS 10 10.6		S-P =18.0	iP 08 09 37.4 i(S) 09 59.1	iP 08 09 29.8 i(S) 09 45.2	eP 08 11 00	
		COMP DE NE	DILAT	DILAT	DILAT	COMP		
632		eP 09 33 08.0 iS 33 24.9		S-P =09.9	iP 09 33 08.2 iS 33 25.0	iP 09 33 00.8 iS 33 12.1		
			COMP	(DILAT)	DILAT	DILAT		
633		e(P) 17 40 44.6 eS 41 15.0		S-P =24.3	iP 17 40 23.9 iS 40 40.9	iP 17 40 24.9 iS 40 42.8		
			DILAT	DILAT	COMP	DILAT		
634	23/11	eP 10 27 42.0 i(S) 28 36.0		iP 10 27 39.7 S SAT		e(P) 10 27 28.3 i 27 29.8 S SAT	P 10 27 38.3 S 28 25	eiP 10 27 35.5 i 41.0 iS 28 14.5
635		e(P) 10 49 02 i 49 20.0 e(S) 50 32 (e) 50 51		e(P) 10 49 13.1 i 49 26.6 e(S) 50 18.5 (e) 51 06.3 i 51 12.7		e(P) 10 49 20.7 e(S) 51 30.8		

MES Noviembre AÑO 1964 Hoja de datos N° 12

N° orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QU</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
636	23/11	iP 23 33 05.1 iS 33 44.2 COMP	iP 23 33 05.9 iS 33 46.2 COMP	e(P)23 32 57.6 i 32 58.0 eS 33 32.5 COMP	iP 23 33 06.3 iS 33 46.5 COMP	iP 23 32 56.6 eS 33 30.2 COMP	P 23 36 45.5 e(L) 48 COMP	eiP 23 36 57.7 COMP
637	24/11		e(P)00 48 45.0 iS 49 07.0 COMP	e(P)00 48 41.9 iS 49 02.0 COMP	eP 00 48 39.1 i 48 39.6 iS 48 57.1 COMP	iP 00 48 33.8 iS 48 48.1 COMP		iP 00 49 10.0 COMP
638			e(P)03 28 16.9 e(S) 39.1 COMP	e(P)03 28 16.0 eS 28 36.4 COMP	iP 03 28 09.5 e(S) 28 24.1 DILAT	eP 03 28 07.2 iS 28 20.4 COMP		
		eP 06 48 07.0 e(S) 48 37.5 COMP	eP 06 47 58.5 iS 48 23.2 COMP	e(P)06 47 56.1 e(S) 48 21.0 COMP	iP 06 48 46.0 e(S) 48 59.5 COMP	eP 06 47 47.7 iS 48 04.7 COMP		
639		iP 11 46 02.1 iS 46 06.8 COMP	iP 11 46 10.0 iS 46 21.1 COMP	e(P)11 46 09.6 i 46 11.4 iS 46 21.0 COMP	iP 11 46 12.3 iS 46 30.1 COMP	eP 11 46 23.9 eS 46 44.6 COMP		
			e(P)16 29 19.1 eS 29 45.2 COMP	eP 16 29 20.0 iS 29 48.5 COMP	iP 16 29 05.4 iS 29 23.2 i 29 24.2 COMP	eP 16 29 11.3 i 29 11.7 iS 29 32.6 COMP		
		eP 21 52 49.9 iS 53 09.6 COMP	eP 21 52 36.9 i(S) 52 54.1 COMP	iP 21 52 43.4 i(S) 53 07.7 COMP	eP 21 52 28.0 e(S) 52 38.7 COMP	iP 21 52 40.7 i(S) 52 57.4 i 53 02.1 DILAT	eP 21 52 31 COMP	iP 21 53 23.3 iS 54 15.7 COMP
640		iP 22 07 44.0 iS 08 20.5 COMP	iP 22 07 46.1 S SAT DILAT	iP 22 07 38.0 iS 08 10.5 DILAT	iP 22 07 48.2 i(S) 08 29.4 (COMP)	iP 22 07 38.1 iS 08 10.3 COMP		

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Hoja de datos N° 13

N° orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
641	25/11	eP 04 36 25.2 iS 36 57.2	eP 04 36 10.1 iS 36 29.4	iP 04 36 14.8 i(S) 36 37.3	iP 04 36 49.5 i(S) 36 32.7	iP 04 36 06.7 i(S) 36 25.4		eiP 04 37 04.0 S 38 04.2
			COMP	COMP	DILAT	DILAT		
642			e(P)06 18 26.6 eS 18 50.3	e(P)06 18 27.7 e(S) 18 52.9	eP 06 17 13.6 e(S) 17 28.2	eP 06 18 19.2 i(S) 18 38.3		
					COMP			
643		eP 08 52 22.9 eS 52 44.3		iP 08 52 12.7 iS 52 27.6	i(P)08 52 19.6 e(S) 52 39.0	eP 08 52 11.0 iS 52 23.7		
644		e(P)20 18 20.8 eS 18 48.1	iP 20 18 10.5 i(S) 18 33.5	eP 20 18 08.8 iS 18 30.3	iP 20 18 01.8 i(S) 19.9	iP 20 18 00.1 i(S) 18 15.4		
			DILAT	DILAT	COMP	DILAT		
645		iP 20 29 23.7 i(S) 29 43.9	iP 20 29 10.7 SAT	e(P)20 29 18.2 eS 29 34.2	i(P)20 29 13.7 i(S) 25.7	iP 20 29 19.5 i(S) 29 38.3		
			COMP			COMP		
			e(P)20 31 49.6 iS 32 38.7	iP 20 31 57.7 iS 32 56.0	e(P)20 31 40.8 e(S) 32 20.3 i 32 22.0	iP 20 31 54.5 iS 32 49.4	(P) 20 31 44.5 i 53.3 S 32 40.0	iP 20 31 16.4 iS 40.0
				(COMP)		COMP		
			eP 22 37 33.2 eS 38 32.5	eP 22 37 39.5 eS 38 43.9 i 38 45.6	e(P)22 37 12.1 e(S) 37 54.7	e(P)22 37 33.2 e(S) 38 31.3	P 22 36 51.3 S 37 18	iP 22 36 44.2 iS 37 07.1
			COMP					
646	26/11	eP 01 43 25.8 eS 43 46.3	iP 01 43 19.4 iS 43 34.9	iP 01 43 16.2 iS 43 29.0	iP 01 43 20.4 i(S) 43 36.9 i 43 38.7	iP 01 43 13.8 e(S) 43 24.8 i 43 26.5		
		(DILAT)	DILAT	DILAT		COMP		
			eP 03 04 45.2 iS 05 04.6	eP 03 04 50.7 iS 05 12.4	iP 03 04 25.0 i(S) 04 33.3 DILAT	eP 03 04 41.2 e(S) 04 56.4 i 04 57.8		

N° orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
	26/11	eP 07 22 06.6 i(S) 22 43.4	eP 07 21 51.2 i 21 52.8 i(S) 22 08.1 i 22 13.5	e(P)07 21 54.8 i(S) 22 18.6 i 22 20.1	iP 07 21 37.2 i(S) 21 46.3	iP 07 21 47.3 i(S) 22 03.7 i 22 05.9 i 22 08.5 i 22 10.3	P 07 22 40.5	iP 07 22 49.4 iS 23 37.5
			COMP	COMP	DILAT	DILAT		
		eP 08 50 11.2 eS 50 31.9	e(P)08 50 16.1 e(S) 50 39.9 i 50 46.7	eP 08 50 07.0 iS 50 27.0	e(P)18 50 25.2 e(S) 50 56.2 i 51 02.4	iP 08 50 13.7 eS 50 37.7		
		DILAT		COMP				
		e(P)09 32 23.5 e(S) 33 25.4	eP 09 32 10.1 e(S) 32 57.8	e(P)09 32 16.3 e(S) 33 11.7	eP 09 32 59.2 e(S) 33 29.9	e(P)09 32 08.0 e(S) 32 57.7	iP 09 31 40.0 S 32 07.0	iP 09 31 42.1 iS 32 10.0
647			eP 12 21 31.4 i(S) 22 02.1	e(P)12 21 34.1 e(S) 22 08.0	eP 12 21 14.2 eS 21 31.8	eP 12 21 23.5 iS 21 49.0		
648			e(P)18 02 54.4 eS 03 18.1	e(P)18 03 08.8 eS 03 31.7 i 03 32.2	iP 18 02 43.8 i(S) 02 59.3	iP 18 02 44.8 iS 03 00.8		
				DILAT	DILAT	COMP		
			eP 18 31 50.8 i 32 51.3 iS 32 21.5	eP 18 31 48.1 iP 31 48.4 i(S) 32 21.3 i 32 22.0	iP 18 31 42.7 i(S) 32 24.0	iP 18 31 32.0 iS 32 05.3		
			DILAT	DILAT	COMP	DILAT		
649		eP 20 34 01.2 iS 34 22.1	eP 20 33 58.7 i 33 59.1 iS 34 18.8	eP 20 33 58.7 i 33 59.1 iS 34 18.8	iP 20 33 54.5 i(S) 33 11.4	eP 20 33 50.1 i 33 50.5 i(S) 34 03.1		
				(COMP)				
650			iP 20 49 28.1 iS 50 06.9	iP 20 49 21.3 i(S) 49 53.7	iP 20 49 27.3 i(S) 50 03.5	iP 20 49 17.4	iP 20 50 18.5 S 51 35	eP 20 50 31.1 iS 51 58.6
			DILAT	DILAT	COMP			

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Nº orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QLL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
	27/11	iP 10 59 53.7 iS 11 00 29.1 COMP DEL E	iP 10 59 55.6 i(s) 11 00 33.1 DILAT			iP 10 59 47.3 iS 11 00 16.8 DILAT	P 11 00 56.0	iP 11 01 06.1 iS 02 40.4
	28/11		iP 10 52 03.6 iS 52 30.0 COMP	(S-P)=25.8		iP 10 51 53.8 iS 52 12.4 DILAT	e(P) 10 52 47	eP 10 53 14.2 eS 53 55.0
651		iP 16 44 48.9 eS 47 25.2 e 51 40.9 COMP DEL N	iP 16 44 38.9 S SAT COMP	e(P) 16 44 38.9 e(S) 47 16.0		eP 16 44 39.3 i 44 39.7 i 44 40.9 eS 47 10.1 i 47 23.1	iP 16 43 47.4 45 34	iP 16 43 40.0 iS 45 20.0
652		iP 16 52 44.9 eS 55 20.7 e 59 36.8 COMP DEL N				eP 16 52 35.3 i 52 35.8 i 52 36.6 eS 55 06.3 i 55 18.5	iP 16 51 43.2 iS 53 30	iP 16 51 35.8 iS 53 17.0
		eP 19 41 08.8 eS 41 51.6				iP 19 40 49.2 iS 41 18.2		eP 19 41 40.5 iS 42 48.0
653		eP 23 07 17.6 eS 07 46.4	eP 23 07 06.8 iS 07 31.7 DILAT	eP 23 07 06.3 i 07 06.5 iS 07 30.5 COMP		iP 23 06 57.4 iS 07 15.0 COMP		
654	29/11	iP 22 55 50.0 iS 56 41.8 DILAT	iP 22 55 44.5 iS 56 33.0 DILAT	iP 22 55 40.3 eS 56 24.9 DILAT		e(P) 22 55 33.4 e(S) 56 15.0		eiP 22 56 27.0 iS 57 48.8
655	30/11	eP 03 11 49.5 e(S) 12 21.2	eP 03 11 38.9 iS 12 06.1 DILAT	eP 03 11 39.0 iS 12 07.6		iP 03 11 30.4 eS 11 51.3 DILAT		

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Hoja de datos Nº 16

Nº orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
	30/11	e(P) 07 00 24.4 e(S) 00 52.9	iP 07 00 12.9 iS 00 38.0			iP 07 00 08.3 iS 00 32.1	eP 07 00 39	eF 07 00 41.0 iS 01 36.5
		COMP	(COMP)			COMP		
656		iP 10 32 55.1 eS 33 13.6	iP 10 32 51.9 iS 33 08.2			iP 10 32 47.9 i(S) 33 01.0		
		COMP DEL NE	DILAT			COMP		

Chile Dec. 19

DETERMINACION PROVISORIA DE EPICENTROS. RED ANDES
PROGRAMA SISMOLOGICO. UNIVERSIDAD DE CHILE - ANTOFAGASTA

BOLETIN N° 19 - DICIEMBRE 1964

Como antes, se ha seguido aplicando las tablas de Jeffreys-Bullen (1958). De las Tablas se obtienen valores promedios que se introducen en el "computador mecánico analógico".

En lo fundamental, la determinación se hace en base a la diferencia S-P, aunque desde luego, la solución es comprobada y ajustada mediante los datos P.

Como siempre, hemos usado y copiado en el Boletín los datos de La Paz y de Arequipa que sacamos de los Boletines que gentilmente nos envían.

Se copia además, los resultados dados en la tarjetas "Preliminary Determinations of Epicenters" de la USCGS cuando tenemos los datos de suficientes estaciones que permitan un estudio comparativo posterior.

El error de la hora origen se obtiene calculando la desviación standard con respecto al promedio de los valores inferidos a partir de los tiempos P de las estaciones.

El error de las coordenadas es estimativo a partir de la calidad de la solución.

La numeración (N° de orden) es correlativa a partir del Boletín N°1.

El error de la diferencia S-P se estima aproximadamente en 0,2 seg.

El error del tiempo de llegada de onda P se estima en aproximadamente 0,5 seg.

Las coordenadas de las estaciones que componen la Red son:

ANTOFAGASTA	ANT	23° 42' 18" S.	70° 24' 55" W	80 m
SALINAS	SLN	23° 09' 14" S	69° 36' 40" W	1.350 m
CALAMA	CAC	22° 28' 47" S	69° 01' 34" W	2.000 m
QUILLAGUA	QUL	21° 39' 20" S	69° 31' 42" W	800 m
MICHILLA	MIC	22° 42' 23" S	70° 16' 01" W	100 m
LA PAZ	LPB	16° 21' 57.6"S	68° 05' 54.1"W	3.292 m

OBSERVACIONES AL BOLETIN N° 19

Los datos correspondientes al día 12 a las 19 horas 16 minutos corresponden a una explosión en la mina de cobre de Chuquicamata.

Los datos correspondientes al día 12 a las 20 horas 27 minutos corresponden a una explosión en la mina de cobre de Mantos Blancos.

DETERMINACION PROVISORIA DE EPICENTROS. RED ANDES
PROGRAMA SISMOLOGICO. UNIVERSIDAD DE CHILE. ANTOFAGASTA

BOLETIN Nº 19 - DICIEMBRE 1964

Nº orden	FE- CHA	HORA ORIGEN		COORDENADAS			Profun- didad Km	Esta- ciones usadas	Deter- minado por:
			+seg.	φ	λ	+ Min.			
657	1/12	11 14 42.5	0.5	22°22'	68° 40'	3'	100	(A)M(S)QC	R.A.
658		22 53 49.9	0.8	23°21'	70° 27'	3'	60	AMS(C)	R.A.
659	2/12	08 17 41.9	1.1	22.4°	70.3°		79	18	USCGS 100-64
660	3/12	17 10 59*	0.4	19.5°	69.2°		180	7	USCGS 102-64
661	4/12	09 21 14.2	0.6	21.3	67.4		60	9	USCGS 94-64
662	6/12	03 15 37.7	0.9	15.4	70.5		164	13	USCGS 96-64
663		23 20 55	0.6	22°25'	69°00'	3'	100	AMSC	R.A.
664	7/12	10 07 42.0	0.7	18.1	68.7		95	8	USCGS 96-64
665		20 41 42.0	1.4	18.9	69.6		127	12	USCGS 98-64
666	8/12	10 53 36.2	0.3	23° 25'	68° 17'	5'	300	AM(S)C	R.A.
667	9/12	16 44 02.2	0.5	20.4	68.0		83	19	USCGS 98-64
668	10/12	12 48 03.7	1.0	21°26'	68°58'	9'	135	M(S)(Q)C	R.A.
669		19 19 21.3	0.2	23°52'	67°27'	3'	240	A(M)SC	R.A.
670	11/12	23 00 01.6	0.7	21°32'	69°25'	3'	110	(M)S(Q)C	R.A.
671		23 01 27.9	0.8	21°22'	68°50'	6'	120	MS(Q)C	R.A.
672	12/12	01 10 59.5	0.8	21°08'	68°43'	3'	160	MSQC	R.A.
673		06 33 00.5	0.8	24°00'	68°05'	5'	255	AMS(Q)C	R.A.
674		11 10 07.3	0.3	21°45'	67°31'	3'	230	AMSQC	R.A.
675		12 13 19.5	0.5	23°50'	67°50'	3'	235	AMSC	R.A.
676		14 20 35.1	0.8	21°09'	68°42'	6'	125	(A)MSQC	R.A.
677		17 00 17.7	0.3	23°56'	67°37'	3'	250	AMSQC	R.A.
678		20 16 13.8	0.6	23°00'	66°53'	6'	260	(A)MSQC	R.A.
679	13/12	00 07 41.2	0.4	21°41'	68°32'	6'	130	(A)MS(Q)C	R.A.
680		02 02 27.2	0.5	23°48'	69°32'	3'	265	AMS(C)	R.A.

N° or- den	FE- CHA	HORA ORIGEN		COORDENADAS			Profun- didad	Esta- ciones usadas	Deter- mina- do por:
			+seg.	ϕ	λ	+Min.			
681	13/12	16 09 00.1	0.3	22°57'	70°28'	6'	35	(A)M(S)(Q) (C)	R.A.
682		16 15 23.6	0.5	21°17'	68°42'	6'	145	(A)MS(Q)C	R.A.
683		17 12 09.6	0.8	22°47'	68°50'	6'	115	AMS(Q)(C)	R.A.
684	14/12	00 44 47.3	0.6	24°00'	66°43'	6'	180	A(M)SQC	R.A.
685		05 59 52.2	0.7	23°51'	67°22'	6'	260	AMS(Q)C	R.A.
686		10 24 10.0	0.5	20°43'	68°15'	6'	190	AMS(Q)C	R.A.
687	15/12	02 57 44.6	0.3	21°08'	68°58'	9'	130	AM(S)(Q)C	R.A.
688		06 14 29.0	0.3	22°38'	69°05'	9'	95	(A)(S)(Q) (C)	R.A.
689		21 53 07.3	0.7	23°38'	67°50'	6'	270	AMS(C)	R.A.
690	16/12	03 14 05.1	0.3	23°25'	69°04'	3'	90	AMSC	R.A.
691		20 12 25.0	0.8	24°01'	67°34'	3'	240	AMSC	R.A.
692		21 39 54.5	0.3	21°56'	68°47'	6'	115	AM(Q)C	R.A.
693		23 32 28.3	0.5	21°49'	68°38'	3'	180	MS(Q)C	R.A.
694	17/12	03 56 03.6	0.2	22°00'	70°25'	3'	50	A(M)SQC	R.A.
695		09 23 22.9	0.7	21°49'	68°52'	6'	120	MSQC	R.A.
696		11 33 36.8	0.9	21°50'	69°03'	3'	100	MSQC	R.A.
697		12 41 28.1	0.2	22°20'	70°26'	6'	30	(M)SQC	R.A.
698		14 09 41.5	0.7	21°50'	68°43'	3'	120	(A)MSQC	R.A.
699		14 58 25.8	0.6	21°53'	69°43'	3'	160	A(M)(S)(Q)	
		14 58 26.3	0.6	21.5	66.9		190	9	USCGS 106-64
700	18/12	02 45 52.7	0.8	23°17'	68°28'	3'	180	AMSQC	R.A.
701		11 28 29.0	0.6	23°56'	69°28'	6'	100	AMSQ(C)	R.A.
702		12 59 43.7	0.5	24°04'	67°59'	3'	245	MSQC	R.A.
703		16 45 20.6	1.1	22°48'	68°54'	6'	140	AMSQ(C)	R.A.
704		17 31 31.1	0.3	21°24'	68°56'	3'	130	MSQC	R.A.
705		21 37 27.8	1.1	23°17'	68°30'		185	AMSQC	R.A.
706	19/12	02 32 51.4	0.5	23°03'	69°13'		95	MSQC	R.A.

Nº orden	FECHA	HORA ORIGEN		COORDENADAS			Profundidad (Km)	Nº Estaciones usadas	Determinado por:	
			+seg	ϕ	λ	+Min				
707	19/12	11 18	12.1	0.6	16.9	73.1	6'	0-10	(A)MSQ(C)	R.A.
708	20/12	01 14	23.2	-0.9	22°58'	68°42'	3'	195	AMSQ	R.A.
709		06 48	36.3	0.5	22°03'	68°49'	6'	110	MS(Q)C	R.A.
710		08 44	42.5	1.0	33.9	72.0		28	15	USCGS 105-64
711		15 45	25.3	0.7	22.2	69.1		100	16	USCGS 108-64
712		16 35	33.1	0.4	22°02'	68°59'	3'	80	AMS(C)	R.A.
713		22 43	35	0.7	18.6	69.5		129	9	USCGS 105-64
714	21/12	01 04	17.5	0.5	23°31'	69°39'	3'	105	A(M)(S)(Q) (C)	R.A.
715		01 48	19.8	0.6	21°08'	69°20'	3'	120	(A)MSQC	R.A.
716		04 21	06.9	0.8	23°11'	69°32'	3'	85	AMQC	R.A.
717		09 57	30.4	1.1	22°53'	70°47'	3'	0-50	AMQC	R.A.
718	22/12	14 55	40.0	0.8	23°22'	67°14'	3'	290	ASQC	R.A.
719	23/12	06 30	38	1.0	27.4	63.1		580	9	USCGS 102-64
720		11 11	50.9	1.1	19.7	68.5		163	9	USCGS 108-64
721	25/12	08 48	37.7	0.6	18.8	69.0		117	23	USCGS 104-64
722		09 51	02	0.8	22.5	67.3		92	12	USCGS 104-64
723		17 56	40.1	1.7	25.3	68.1		101	19	USCGS 104-64
724	27/12	04 32	04.8	0.2	22°32'	69°10'	3'	110	AMSQC	R.A.
725		09 44	08.5	0.6	22°57'	70°33'	6'	40	AMSC	R.A.

MES

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Hoja de datos N° 1

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALIÑAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
657	1/12	e(P) 11 15 18.6 e(S) 15 44.9	iP 11 15 10.5 iS 15 31.7	S-P=19.8	iP 11 15 05.2 iS 15 22.0	iP 11 14 59.2 iS 15 11.0		
			DILAT		COMP	DILAT		
658		eP 22 54 02.0 eS 54 10.2	iP 22 54 03.0 iS 54 12.9	eP 22 54 02.1 eS 54 10.5		eP 22 54 12.7 e(S) 54 29.9		
			COMP	DILAT		COMP		
	2/12	eP 07 09 16.3 e(S) 10 24.3 i 10 26.3	eP 07 09 03.7 eS 10 01.8 i 10 05.1	(S-P)=66	eP 07 08 55.8 eS 09 45.7	eP 07 09 08.3 e(S) 10 08.8 e(S) 10 10.6	P 07 08 43.2	iP 07 08 05.1 iS 08 18.2
							COMP	
659		iP 08 18 03.8 iS 18 24.0	eP 08 18 02.4 i 18 07.6		eP 08 18 07.3	e(P) 08 17 55.2 i 55.7	P 08 19 14.0 S 20 34	eP 08 19 18.0 e(S) 20 43.8 i(S) 21 07.2
		COMP	DILAT		COMP	COMP		
		eP 08 30 00.5 eS 30 46.2	eP 08 29 53.7 e(S) 30 29.8			eP 08 29 41.4 e(S) 30 (08)		iP 08 30 40.3 iS 31 53.4
660	3/12	e(P) 17 11 29.1	eP 17 11 16.9 i(S) 11 41.8			iP 17 11 10.4 i(S) 11 30.5	eP 17 11 50 (S) 12 29	iP 17 11 57.2 iS 12 57.8
661	4/12	eP 09 22 04.9 i 22 06.4 iS 22 36	iP 09 21 53.7			eP 09 21 31.3	eP 09 22 38.7 e(S) 23 38	iP 09 22 44.5 iS 23 51.0
			COMP					COMP
	5/12	eP 20 58 09.5 eS 58 45.1	eP 20 58 03.4 i(S) 58 34.7			eP 20 57 51.5 iS 58 15.0		
			COMP			COMP		

MES		Diciembre		AÑO		1964		Hoja de datos N° 2			
N° orden	fecha	ANTOFAGASTA		MICHILLA		SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA	
662	5/12	eP 03 17 32.0	eP 03 17 17.6				(S-P)=58.9	eP 03 17 20.0	iP 03 16 28.2	iP 03 16 07.9	
		i 17 32.0	i 17 18.6			i 17 20.6		eS 17 03	iS 16 29.8		
		eS 18 55.8	eS 18 30.7					eS 18 36.6			
		i 18 58.7	i 18 32.6								
			(COMP)					COMP			
663	6/12	eP 23 21 26.3	eP 23 21 17.2				S-P =15.0	iP 23 21 09.1			
		eS 21 47.4	iS 21 34.4			iS 21 19.5					
			(DILAT)			COMP	COMP				
	7/12		eP 07 45 08.0				(S-P)=39.7	iP 07 45 01.0	P 07 46 07.8		
			iS 45 44.6			iS 45 32.9					
			(DILAT)					COMP			
664			e(P)10 08 39.5					e(P)10 08 39.1	iP 10 08 27.3	iP 10 08 30.9	
			i 08 46.8					i(S) 09 08.3	iS 09 01	eS 09 07.0	
			S SAT								
			(DILAT)						COMP		
665			eP 20 42 34.5					eP 20 42 34.6	iP 20 42 27	iP 20 42 28.7	
			i 42 35.1					iS 43 03.6	iS 43 02	iS 42 54.5	
			i(S) 43 01.9								
			i 43 05.0								
666	8/12	eP 10 53 23.6	iP 10 53 23.0				(S-P)=39.8	iP 10 53 17.2			
		eS 53 01.1	iS 53 59.9			iS 53 49.5					
		DILAT					COMP				
667	9/12	iP 16 44 59.3	iP 16 44 44.9						P 16 45 14	iP 16 45 17.6	
		iS 45 37	i(S) 45 11.4						iS 46 01	i(S) 46 11.0	
		DILAT FROM N	COMP							i 47 12.0	
			eP 08 15 15.6	iP 08 15 21.4			(S-P)=11.4				
			e(S) 15 34.4	iS 15 41.0				(S-P)=13.8			
							DILAT	COMP			

Nº orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
668	10/12		iP 12 49 35.2 eS 49 59.5	i(P)12 49 38.3 iS 50 05.0	(S-P)=15.7	S-P=18.7		
				COMP		DILAT		
669		e(P)19 20 10.8 e(S) 20 49.2	(S-P)=39.2	iP 19 20 04.6 eS 20 37.7		iP 19 20 02.9 eS 20 35.2		
	11/12	eP 18 42 14.9 iS 42 36.9		iP 18 42 04.5 iS 42 20.2	iP 18 42 05.4 i(S) 42 22.5	iP 18 41 59.6 i(S) 42 12.4		
				DILAT		DILAT		
670			i(P)23 00 27.5 iS 00 47.4	eP 23 00 30.3 eS 00 52.1	iP 23 00 16.1 e(S) 00 27.3	iP 23 00 23.5 iS 00 39.6		
						COMP		
671			iP 23 01 58.4 eS 02 23.3	eP 23 02 00.4 iS 02 25.1	iP 23 01 46.6 e(S) 01 01.0	iP 23 01 51.3 iS 02 08.5		
					DILAT	COMP		
	12/12		eP 00 50 39.4 iS 51 08.8	eP 00 50 45.2 e(S) 51 22.0	iP 00 50 21.1 e(S) 50 36.0	eP 00 50 37.8 eS 51 05.9		
					DILAT			
672			eP 01 11 36.9 eS 12 05.3	eP 01 11 37.1 eS 12 05.9	eP 01 11 23.5 iS 11 42.5	iP 01 11 27.7 iS 11 49.9		
						DILAT		
673		iP 06 33 46.2 iS 34 21.2	iP 06 33 48.8 iS 34 25.4	iP 06 33 40.3 iS 34 11.5	e(P)06 33 51.1 e(S) 34 30.7	iP 06 33 40.7 iS 34 12.6		
		COMP DEL E	DILAT	DILAT	DILAT	DILAT		
		iP 08 00 47.3 iS 01 10	iP 08 00 45.8 S SAT	iP 08 00 28.0 S SAT	eP 08 00 48.7 S SAT	iP 08 00 38.7 S SAT	eP 08 02 55	eP 08 02 10.0 iS 03 20.5
		COMP DEL ENE	COMP	DILAT		COMP		
674		eP 11 10 43.7 iS 11 27.0	iP 11 10 36.1 iS 11 13.9	iP 11 10 33.4 eS 11 09.1	iP 11 10 25.3 iS 10 56.5	iP 11 10 24.4 iS 10 53.3	eP 11 10 58	eiP 11 11 15.5 e 12 20.6
		COMP DEL NE	DILAT	DILAT	(COMP)	DILAT		
675		eP 12 14 04.6 eS 14 39.8	iP 12 14 06.9 eS 14 42.9	eP 12 13 58.5 eS 14 28.9		eP 12 13 58.2 iS 14 28.4		
				(COMP)				
676		e(P)14 21 21.8 e(S) 21 52.5	iP 14 21 10.6 eS 21 47.7	iP 14 21 10.5 eS 21 38.5	e(P)14 20 57.2 e(S) 21 14.1	iP 14 21 01.0 iS 21 21.1		
						DILAT		

Nº orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
677	12/12	eP 17 01 04.6	iP 17 01 06.9	iP 17 00 59.2	e(P)17 01 08.8	iP 17 00 59.1		
		iS 01 41.4	eS 01 44.8	eS 01 31.2	eS 01 49.3	eS 01 31.0		
		COMP	DILAT	DILAT		COMP		
Explosión Chuquicama- ta.		eP 19 16 19.8	eP 19 16 05.3	iP 19 16 03.9		eP 19 15 47.9		
		iS 16 45.6	iS 16 23.4	eS 16 18.6		eS 15 52.0		
		COMP		COMP				
678		iP 20 17 11.8	iP 20 17 08.9	iP 20 17 03.0	iP 20 17 04.9	eP 20 16 57.7		
		e(S) 17 54.0	eS 17 51.7	iS 17 40.4	iS 17 44.6	eS 17 31.4		
		DILAT DEL ENE	DILAT	COMP	DILAT			
Explosión Mantos Blan- cos.		iP 20 27 40.8	iP 20 27 44.0	iP 20 27 42.0	e(P)20 28 02.5	eP 20 27 57.0		
		i(S) 27 47.0	iS 27 54.2	eS 27 49.1	e(S) 28 29.1	iS 28 15.7		
		COMP DEL ENE		DILAT				
679	13/12	eP 00 08 24.1	iP 00 08 14.7	eP 00 08 13.1		iP 00 08 04		
		e(S) 08 56.6	iS 08 40.0	iS 08 37.7	(S-P)=16.7	iS 08 21		
			DILAT					
680		iP 02 03 17.7	iP 02 03 18.2	i(P)02 03 10.8		iP 02 03 09.5		
		eS 03 56.9	iS 03 58.1	iS 03 45.4		e(S) 03 42.8		
		COMP DEL ESE						
			eP 06 53 27.9	e(P)06 53 32.8	iP 06 53 12.1	iP 06 53 26.4		
			iS 53 52.6	e(S) 54 00.5	i(S) 53 25.7	S 53 47.1		
						COMP		
		e(P)07 44 02.1	iP 07 43 49.8	iP 07 43 53.4	iP 07 43 36.2	iP 07 43 45.2	P 07 44 19	eP 07 44 23.0
		i(S) 44 30.1	iS 44 13.6	eS 44 19.6		i(S) 44 07.9		iS 45 17.0
					COMP			
		iP 13 27 33.2	iP 13 27 34.1	iP 13 27 26.9	iP 13 27 37.0	iP 13 27 23.7		
		iS 28 10.8	iS 28 13.8	iS 28 09.3	iS 28 18.2	iS 27 57.8		
681		eP 16 09 15.2	iP 16 09 06.9	i(P)16 09 14.6	e(P)16 09 27.3	eP 16 09 24.3		
		e(S) 09 25.1	iS 09 11.9	iS 09 25.2	eS 09 46.9	e(S) 09 41.9		
			COMP					
682		eP 16 16 10.2	eP 16 15 59.3	iP 16 15 59.2	iP 16 15 46.0	iP 16 15 50.3		
		e(S) 16 38.7	iS 16 26.5	iS 16 26.5		iS 16 10.2		
				COMP		DILAT		
683		eP 17 12 39.2	iP 17 12 34.1	iP 17 12 29.0	e(P)17 12 36.9	iP 17 12 26.9		
		e(S) 13 00.3	iS 12 53.1	iS 12 43.6	e(S) 12 56.0	iS 12 39.1		
			DILAT	DILAT		COMP		

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
684	14/12	iP 00 45 43.0 iS 46 24.7	iP 00 45 43.1 iS 46 25.3	iP 00 45 35.0 i 45 35.4 iS 46 10.0	iP 00 45 43.6 iS 46 25.1	iP 00 45 33.6 iS 46 08.0		
		COMP DEL ESE			COMP	DILAT		
		e(P)02 54 42.1	iP 02 54 29.3	eP 02 54 38.2	eP 02 54 23.1	eP 02 54 35.3	P 02 53 58.5 iS 53 34.0	iP 02 53 14.5 iS 53 34.0
		eP 03 09 55.9	iP 03 09 44.6 i(S) 10 10.2	iP 03 09 47.1 eS 10 14.7	iP 03 09 30.2 iS 09 46.8	iP 03 09 39.2 iS 10 03.3	P 03 10 13.8	eiP 03 10 16.7 11 07.7
		DILAT	DILAT	DILAT	COMP	COMP	COMP	
685		eP 06 00 43.4 eS 01 22.2	eP 06 00 43.1 eS 01 23.3	iP 06 00 35.6 eS 01 09.8	e(P)06 00 44.2 e(S) 01 24.7	eP 06 00 34.7 eS 01 08.4		
				COMP				
686		eP 10 25 16.3 iS 25 59.6	iP 10 25 06.2 i(S) 41.6	iP 10 25 55.6 iS 25 41.2	eP 10 24 53.8 i(S) 25 19.3	iP 10 24 56.7 iS 25 24.9	iP 10 25 23.8 iS 26 14.5	iP 10 25 36.9 iS 26 34.5
			DILAT	COMP		DILAT	COMP	
			iP 12 07 18.3 i(S) 07 39.3 i 07 41.4	(S-P)=19.3	iP 12 07 12.1 i(S) 07 29.0	iP 12 07 07.7 iS 07 21.6		
					COMP	DILAT		
		iP 20 33 31.0 iS 33 35.8	eP 20 33 37.6 eS 34 49.2	iP 20 33 38.3 e(S) 33 51.0	eP 20 33 57.3 e(S) 34 20.9	iP 20 33 52.8 iS 34 14.4		
				COMP				
687	15/12	eP 02 58 31.0	eP 02 58 19.1 eS 58 44.9	(S-P)=28	iP 02 58 05.2	iP 02 58 10.4 iS 58 30.9		
688		eP 06 14 58.1 e(S) 15 18.0		(S-P)=14	eP 06 14 51.0 e(S) 15 08.0	iP 06 14 42.3 iS 14 52.7		
						DILAT		
		eP 06 32 28.6 i 32 29.2 eS 33 15.7			eP 06 32 21.1 eS 33 02.3	eP 06 32 14.6 eS 32 54.0	(P)06 33 14 eL 40 24	iP 06 34 16.3 iS 41.0
		eP 06 57 08.2 i 57 09.5		(S-P)=28	iP 06 56 42.9	iP 06 56 49.3 iS 57 10.1	P 06 57 30.7 i(S) 58 54.5	iP 06 57 38.0 iS 58 35.0

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
688	14/12	eP 07 04 49.0 e 05 16.0		(S-P)=30	iP 07 04 21.6	eP 07 04 27.5 iS 04 48.1		
689	15/12	eP 21 53 54.7 eS 54 31.5	eP 21 53 55.9 e 54 18.6 iS 54 32.7	eP 21 53 48.1 iS 54 20.3		eP 21 53 45.7 eS 54 17.3		
690	16/12	iP 03 14 28.4 e 14 45.7	eP 03 14 28.4 i 14 29.4 iS 14 46.6	iP 03 14 20.7 iS 14 32.5	iP 03 14 41.9 i(S) 14 58.7	iP 03 14 24.4 iS 14 38.9		
			COMP	COMP		DILAT		
			eP 19 33 44.2 iS 34 11.1	eP 19 33 43.0 eS 34 11.2	eP 19 33 32.4 eS 33 51.7	e 19 33 33.1 iP 33 33.6 iS 33 54.0		
691		eP 20 13 14.5 i(S) 13 52.2	eP 20 13 15.2 eS 13 54.6	eP 20 13 07.8 e 13 33.1 i(S) 13 41.1		e(P) 20 13 06.4 e(S) 13 39.5		
692			iP 21 40 23.2 eS 40 44.7	eP 21 40 22.0 iS 40 42.8	S-P=15.4	e(P) 21 41 13.0 iS 41 27.2		
693			eP 23 32 59.7 eS 33 23.7 e 33 25.4	eP 23 32 58.2 eS 33 21.3	S-P=17	iP 23 32 48.6 iS 33 04.7		
694	17/12	iP 03 56 30.7 i(S) 56 51.1 i 56 55.1	iP 03 56 16.9	eP 03 56 27.3 eS 56 45.7	iP 03 56 20.0 S 56 32.0	iP 03 56 27.5 iS 56 45.9	P 03 57 38 S 58 53	iP 03 57 25.0 iS 58 26.0
			eP 05 43 31.3 iS 43 55.2	eP 05 43(31.3) e(S) 44 01.9	iP 05 43 19.3 iS 43 35.3	eP 05 43 22.8 eS 43 41.3		
695			eP 09 23 52.0 eS 24 14.2	eP 09 23 51.4 iS 24 13.1	e(P) 09 23 43.3 e(S) 23 58.0	eP 09 23 41.9 iS 23 55.8		

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
695	17/12	eP 10 13 43 i 13 48.3 e(s) 14 37.5	eP 10 13 53.4 e 13 59.8 i 14 02.8 e(s) 14 53.8 i 15 05.4 i 15 11.9	eP 10 13 49.0 e 14(28.8) e(s) 14 44.4	iP 10 14 08.1 eS 15 18.6	eP 10 13 57.5 eS 15 01.6	eP 10 14 51 eL 23 24	
					DILAT			
696			eiP 11 34 03.2 i 04.7 iS 34 23.2 COMP	eP 11 34 04.4 eS 34 24.5	iP 11 33 52.8 iS 34 05.5	iP 11 33 54.6 iS 34 08.4		
					DILAT	(COMP)		
697			iP 12 41 35.1 COMP	iP 12 41 45.3 i(s) 41 59.7 DILAT	eiP 12 41 45.5 (eS) 41 58.7 (DILAT)	iP 12 41 49.2 e(s) 42 04.9 COMP		
698		eP 14 10 20.1 e 10 34.5 e 38.7	e(P)14 10 11.3 eS 10 34.5	eP 14 10(11.1) e 10 31.3 e(s) 33.3	iP 14 10 03.0 iS 10 18.4	iP 14 10 01.5 iS 10 16.6	P 14 07 23 L 22 06	
					DILAT	(DILAT)		
699		eP 14 59 00.5 i(s) 59 27.5 i 59 34.7	iP 14 58 51.4	iP 14 58 50.4 S 59(12.2)	iP 14 58 49.5		P 14 59 43 S 15 00 27	iP 14 59 50.0 iS 15 00 54.5
			DILAT	DILAT				
700	18/12	eP 02 46 28.0 eS 46 55.1	eP 02 46 26.2 iS 46 52.7	eP 02 46 19.8 iS 46 41.3	eP 02 46 29.8 i 46 57.1 e(s) 58.3	eP 02 46 19.4 i 46 38.1 iS 46 40.1		
701		iP 11 28 49.0 iS 29 03.5	iP 11 28 54.4 iS 29 13.8	iP 11 28 47.4 i(s) 29 00.5 SAT	eP 11 29 06.8 iS 29 36.7	iP 11 28 57.0 SAT		
			COMP	DILAT		COMP		
702			iP 13 00 31.3 iS 00 08.0	eP 13 00 24.0 i 00 50.4 iS 00 55.2	iP 13 00 35.8 iS 01 15.2	iP 13 00 24.7 iS 00 56.4		
			COMP	DILAT	(COMP)	COMP		
703		e(P)16 45 52.4 i 45 53.4 eS 46 15.9	P 16 45 47.3 eS 46 07.4	iP 16 45 41.1 eS 45 58.6	eP 16 45 45.9 eS 46 06.2	iP 16 45 36.2 i 45 48.5 i(s) 45 50.9		
				DILAT		COMP		

Nº orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
704	18/12		eP 17 32 02.5 eS 32 26.9	eP 17 32 03.2 iS 32 28.2	iP 17 31 51.3 iS 32 06.6	iP 17 31 54.3 iS 32 12.2		
					COMP	DILAT		
705		iP 21 38 03.0 eS 38 39.8	eP 21 38 03.8 eS 38 41.0	eP 21 37 56.4 S 38 28.9	eP 21 38 06.7 eS 38 45.4	eP 21 37 56.4 eS 38 27.9		
						(COMP)		
706	19/12		eP 02 33 11.7 eS 33(27.1)	iP 02 33 05.8 i(S) 33 16.7 e 33 17.4	eP 02 33 17.8 i 33 37.1 i(S) 33 37.7	eP 02 33 06.8 iS 33 18.2		
				DILAT				
707		eP 11 19 53.9 e(S) 21 16.0	iP 11 19 41.2 e(S) 20 51.4 i 20 57.6	eP 11 19 50.7 eS 21 07.4	eP 11 19 34.2 eS 20 38.9	e(P)11 19 47.9 e(S) 21 02.6 i 21 04.9		iP 11 18 28.7 iS 46.0
			DILAT					
			eP 12 24(06.1) e(S) 24 26.2	e(P)12 24 05.7 iS 24 33.0	eP 12 23 49.5 i(S) 24 03.9	iP 12 23 57.5 iS 24 18.8		
						COMP		
		e(P)21 34 23.9 e(S) 34 44	eP 21 34 02.3 eS 34 14.7	e(P)21 34 11.9 eS 34 31.5	eP 21 34 01.3 e(S) 34 11	eP 21 34 11.4 iS 34 30.7		
						COMP		
708	20/12	eP 01 14 54.7 eS 15 19.3	iP 01 14 49.4 iS 15 10.9	iP 01 14 45.3 iS 15 02.3	S-P=22.7	iP 01 14 40.5 SAT		
			DILAT	DILAT		COMP		
		iP 01 45 39.2 iS 46 13.0	eP 01 45 33.4 iS 46 03.0	eP 01 45 29.0 eS 45 57.1	S-P=25.8	eP 01 45 22.6 iS 45 43.8		
				DILAT		DILAT)		
709			eP 06 49 03.5 eS 49 24.8	eP 06 49 02.5 eS 22.2	S-P=17.1	e(P)06 48 53.6 iS 49 06.8		
710			e(P)08 43 50.7 e(S) 44 29.6	e(P)08 43 57.1 e 44 52.5 e(S) 44 57.0		iP 08 43 51.1 eS 44 40.6 i 44 46.5	iP 08 43 18.4 S 43 45	iP 08 43 19.0 iS 43 46.5
						COMP		
711		iP 15 45 58.0 i 45 59.7 iS 46 23.4	iP 15 45 49.2 S SAT	iP 15 45 48.0 S SAT		iP 15 45 40.8 S SAT	P 15 46 49.4 S 48 21	iP 15 46 51.3 i 47 03.0 iS 48 01.0
			DILAT	DILAT		COMP		

N° orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
712	20/12	e(P)16 36 06.7 eS 36 27.9	iP 16 35 55.8 iS 36 13.8	iP 16 35 54.9 iS 36 11.7		iP 16 35 47.1 SAT		
			DILAT	(COMP)		DILAT		
713		iP 22 44 40.8 e 44 47.2 i(s) 44 54.2 i 45 36.8	eP 22 44 28.1 iS 45 00.7	eP 22 44 33 e(s) 45 02	iP 22 44 14.1 S 44 20.0	e(P)22 44 25.9 e(s) 44 39.1	iP 22 44 16.5 iS 44 51	iP 22 44 22.6 i(s) 45 00.0
				COMP				
		e(P)23 48(58)	eP 23 48 41.0 iS 49 03.4	eP 23 48 37.4 e 48 39.0 e(s) 49 01.0	eIP 23 48 26.2 S 48 41.2	iP 23 48 35.8 iS 48 58.0	P 23 49 14 e(s) 50 36	iP 23 49 16.4 iS 50 09.0
				COMP		DILAT		
714	21/12	iP 01 04 36.2 iS 04 50.1	iP 01 05 39.3	iP 01 04 33.0 SAT	iP 01 04 49.8 SAT	iP 01 04 41.2 SAT	P 01 06 02.5 (S) 07 08.0	iP 01 06 01.0 i(s) 07 21.0
			COMP	COMP	DILAT	COMP		
715		eP 01 49 04.5 e(s) 32.0	eP 01 48 52.7 eS 49 15.5	e(P)01 48 55.2 eS 49 22.4	iP 01 48 38.8 i(s) 53.1	iP 01 48 46.8 iS 49 06.8		
				COMP		DILAT		
716		iP 04 21 26.1 iS 21 40.0	iP 04 21 23.1 iS 21 35.8		eP 04 21 32.4 e 50.6 e(s) 52.2	iP 04 21 24.6 iS 21 37.5		
			DILAT			COMP		
717		eP 09 57 46.5 e(s) 57 57.6	eP 09 57 38.1 eS 57 43.4 i 57 44.8		eP 09 57 57.6 iS 58 18.2	iP 09 57 58.3 eS 58 18.2 i 58 21.1		
						COMP		
718	22/12	eP 14 56 35.5 i 56 35.9 eS 57 18.2		eP 14 56 28.1 eS 57 06.0	iP 14 56 32.4 e(s) 57 13.3	iP 14 56 23.6 eS 56 58.5		
					COMP	(COMP)		
719	23/12	iP 06 32 31.6 eS 34 02.0		iP 06 32 30 e(s) 33 45.0 i 33 59.5		iP 06 32 30.6 iS 33 58.2	P 06 33 15.5 S 35 23	iP 06 33 31.8 i 33 40.2 iS 35 53.0
				DILAT				
		eP 09 07 04.3 eS 07 40.1		iP 09 06(56) eS 07(23)		iP 09 06 44.6 iS 07 06.2	P 09 07 26.8 (S) 08 15	eP 09 07 37.2 iS 08 35.0
				DILAT		DILAT		

Nº orden	FECHA	ANTOFAGASTA	MICHILLA	SALINAS	QUILLAGUA	CALAMA	LA PAZ	AREQUIPA
720	23/12	iP 11 12 56.7 eS 13 44		eP 11 12 48.3 i 12 48.5 SAT		iP 11 12 38.4 i 46.8 iS 13 12.8 COMP	iP 11 12 42.2 iS 13 20	iP 11 12 57.2 iS 13 47.0
		eP 17 01 44 e(s) 02 45		eP 17 01 37.0 e 02 17.3 e(s) 02 31.1		eP 17 01 29.7 iS 02 18.3	iP 17 01 04 S 32	iP 17 01 11.6 iS 01 44.5
	24/12	iP 16 58 02.4 iS 58 33.5		S-P=23		eP 16 57 42.7 iP 45.7 i 47.6 iS 58 02.5 i 58 12.6	eP 16 58 45 (S) 59 43	
				DILAT				
721	25/12	iP 08 49 50.1 iS 50 42		iP 08 49 42 S SAT (DILAT)		iP 08 49 34.9 i(s) 50 07.7 COMP	iP 08 49 22.5 S 52	iP 08 49 29.8 i(s) 50 06.4
722		iP 09 51 36.7 iS 51 59		iP 09 51 27 SAT		iP 09 51 23.2 SAT	P 09 52 40.0 S 54 18	eP 09 52 41.3 i 57.0 e 53 11.0 iS 55.6
				DILAT		DILAT		
723		iP 17 57 15.7 iS 57 38.0		iP 17 57 18.3 S 57 34.3		iP 17 57 26.4 S SAT	P 17 58 46.0 S 18 00 23	eP 17 58 47.0 i 59 06.6 i(s) 00 25.2 e(s) 52.0
				(DILAT)		COMP		
	26/12	eP 05 31 32.9 eS 32 38.1				eP 05 31 26.6 eS 32 30.0		iP 05 30 26.3 iS 30 43.6
724	27/12	eP 04 32 34.3 eS 32 56.0	eP 04 32 26.7 eS 32 43.1	iP 04 32 24 iS 32 39		iP 04 32 20.8 iS 32 31.8 COMP		
				DILAT				
725		iP 09 44 23.2 iS 44 33.7	iP 09 44 16.7 e(s) 44 23.4	iP 09 44 24		eP 09 44 34.6 i 44 44.8 i(s) 44 53.4		
			DILAT	COMP				
	30/12	eP 07 12 37.4 iS 13 04.0		iP 07 12 26.6 iS 12 48.2 i 13 03.6			P 07 13 40	eP 07 13 23.5 iS 14 27.0

N° orden	FECHA	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>
657	1/12	e(P) 11 15 18.6 e(S) 15 44.9	iP 11 15 10.5 iS 15 31.7	S-P=19.8	iP 11 15 05.2 iS 15 22.0	iP 11 14 59.2 iS 15 11.0		
			DILAT		COMP	DILAT		
658		eP 22 54 02.0 eS 54 10.2	iP 22 54 03.0 iS 54 12.9	eP 22 54 02.1 eS 54 10.5		eP 22 54 12.7 e(S) 54 29.9		
			COMP	DILAT		COMP		
	2/12	eP 07 09 16.3 e(S) 10 24.3 i 10 26.3	eP 07 09 03.7 eS 10 01.8 i 10 05.1	(S-P)=66	eP 07 08 55.8 eS 09 45.7	eP 07 09 08.3 e(S) 10 08.8 e(S) 10 10.6	P 07 08 43.2	iP 07 08 05.1 iS 08 18.2
							COMP	
659		iP 08 18 03.8 iS 18 24.0	eP 08 18 02.4 i 18 07.6		eP 08 18 07.3	e(P) 08 17 55.2 i 55.7	P 08 19 14.0 S 20 34	eP 08 19 18.0 e(S) 20 43.8 i(S) 21 07.2
		COMP	DILAT		COMP	SAT		
		eP 08 30 00.5 eS 30 46.2	eP 08 29 53.7 e(S) 30 29.8			eP 08 29 41.4 e(S) 30 (08)		iP 08 30 40.3 iS 31 53.4
660	3/12	e(P) 17 11 29.1	eP 17 11 16.9 i(S) 11 41.8			iP 17 11 10.4 i(S) 11 30.5	eP 17 11 50 (S) 12 29	iP 17 11 57.2 iS 12 57.8
661	4/12	eP 09 22 04.9 i 22 06.4 iS 22 36	iP 09 21 53.7			eP 09 21 31.3	eP 09 22 38.7 e(S) 23 38	iP 09 22 44.5 iS 23 51.0
			COMP					COMP
	5/12	eP 20 58 09.5 eS 58 45.1	eP 20 58 03.4 i(S) 58 34.7			eP 20 57 51.5 iS 58 15.0		
			COMP			COMP		

Antofagasta
December 1964

MES		Diciembre		AÑO		1964		Hoja de datos Nº 2	
Nº orden	fecha	ANTOFAGASTA <i>ANT</i>	MICHILLA <i>MIC</i>	SALINAS <i>SLN</i>	QUILLAGUA <i>QUL</i>	CALAMA <i>CAC</i>	LA PAZ <i>LPB</i>	AREQUIPA <i>ARE</i>	
662	5/12	eP 03 17 32.0 i 17 32.0 eS 18 55.8 i 18 58.7	eP 03 17 17.6 i 17 18.6 eS 18 30.7 i 18 32.6 (COMP)		(S-P)=58.9	eP 03 17 20.0 i 17 20.6 eS 18 36.6	iP 03 16 28.2 eS 17 03	iP 03 16 07.9 iS 16 29.8	
663	6/12	eP 23 21 26.3 eS 21 47.4	eP 23 21 17.2 iS 21 34.4 (DILAT)		S-P=15.0 COMP	iP 23 21 09.1 iS 21 19.5			
	7/12		eP 07 45 08.0 iS 45 44.6 (DILAT)		(S-P)=39.7	iP 07 45 01.0 iS 45 32.9 COMP	P 07 46 07.8		
664			e(P)10 08 39.5 i 08 46.8 S SAT (DILAT)			e(P)10 08 39.1 i(S) 09 08.3	iP 10 08 27.3 iS 09 01	iP 10 08 30.9 eS 09 07.0 COMP	
665			eP 20 42 34.5 i 42 35.1 i(S) 43 01.9 i 43 05.0			eP 20 42 34.6 iS 43 03.6	iP 20 42 27 iS 43 02	iP 20 42 28.7 iS 42 54.5	
666	8/12	eP 10 53 23.6 eS 53 01.1	iP 10 53 23.0 iS 53 59.9		(S-P)=39.8	iP 10 53 17.2 iS 53 49.5			
		DILAT				COMP			
667	9/12	iP 16 44 59.3 iS 45 37	iP 16 44 44.9 i(S) 45 11.4				P 16 45 14 iS 46 01	iP 16 45 17.6 i(S) 46 11.0 i 47 12.0	
		DILAT FROM N	COMP						
	10/12		eP 08 15 15.6 e(S) 15 34.4	iP 08 15 21.4 iS 15 41.0	(S-P)=11.4	(S-P)=13.8			
					DILAT	COMP			

Nº orden	FECHA	ANT ANTOFAGASTA	MIC MICHILLA	SLN SALINAS	QUL QUILLAGUA	CAC CALAMA	LPB LA PAZ	ARE AREQUIPA
668	10/12		iP 12 49 35.2 eS 49 59.5	i(P)12 49 38.3 iS 50 05.0	(S-P)=15.7	S-P=18.7		
				COMP		DILAT		
669		e(P)19 20 10.8 e(S) 20 49.2	(S-P)=39.2	iP 19 20 04.6 eS 20 37.7		iP 19 20 02.9 eS 20 35.2		
	11/12	eP 18 42 14.9 iS 42 36.9		iP 18 42 04.5 iS 42 20.2	iP 18 42 05.4 i(S) 42 22.5	iP 18 41 59.6 i(S) 42 12.4		
				DILAT		DILAT		
670			i(P)23 00 27.5 iS 00 47.4	eP 23 00 30.3 eS 00 52.1	iP 23 00 16.1 e(S) 00 27.3	iP 23 00 23.5 iS 00 39.6		
						COMP		
671			iP 23 01 58.4 eS 02 23.3	eP 23 02 00.4 iS 02 25.1	iP 23 01 46.6 e(S) 01 01.0	iP 23 01 51.3 iS 02 08.5		
					DILAT	COMP		
	12/12		eP 00 50 39.4 iS 51 08.8	eP 00 50 45.2 e(S) 51 22.0	iP 00 50 21.1 e(S) 50 36.0	eP 00 50 37.8 eS 51 05.9		
					DILAT			
672			eP 01 11 36.9 eS 12 05.3	eP 01 11 37.1 eS 12 05.9	eP 01 11 23.5 iS 11 42.5	iP 01 11 27.7 iS 11 49.9		
						DILAT		
673		iP 06 33 46.2 iS 34 21.2	iP 06 33 48.8 iS 34 25.4	iP 06 33 40.3 iS 34 11.5	e(P)06 33 51.1 e(S) 34 30.7	iP 06 33 40.7 iS 34 12.6		
		COMP DEL E	DILAT	DILAT	DILAT	DILAT		
		iP 08 00 47.3 iS 01 10	iP 08 00 45.8 S SAT	iP 08 00 28.0 S SAT	eP 08 00 48.7 S SAT	iP 08 00 38.7 S SAT	eP 08 02 55 iS 02 20.5	eP 08 01 10.0 iS 02 20.5
		COMP DEL ENE	COMP	DILAT		COMP		
674		eP 11 10 43.7 iS 11 27.0	iP 11 10 36.1 iS 11 13.9	iP 11 10 33.4 eS 11 09.1	iP 11 10 25.3 iS 10 56.5	iP 11 10 24.4 iS 10 53.3	eP 11 10 58	eiP 11 11 15.5 e 12 20.6
		COMP DEL NE	DILAT	DILAT	(COMP)	DILAT		
675		eP 12 14 04.6 eS 14 39.8	iP 12 14 06.9 eS 14 42.9	eP 12 13 58.5 eS 14 28.9		eP 12 13 58.2 iS 14 28.4		
			(COMP)					
676		e(P)14 21 21.8 e(S) 21 52.5	iP 14 21 10.6 eS 21 47.7	iP 14 21 10.5 eS 21 38.5	e(P)14 20 57.2 e(S) 21 14.1	iP 14 21 01.0 iS 21 21.1		
						DILAT		

N° orden	FECHA	ANT ANTOFAGASTA	MIC MICHILLA	SLN SALINAS	QUL QUILLAGUA	CAC CALAMA	LPB LA PAZ	ARE AREQUIPA
677	12/12	eP 17 01 04.6 iS 01 41.4 COMP	iP 17 01 06.9 eS 01 44.8 DILAT	iP 17 00 59.2 eS 01 31.2 DILAT	e(P)17 01 08.8 eS 01 49.3	iP 17 00 59.1 eS 01 31.0 COMP		
Explosión Chuquicama- ta.		eP 19 16 19.8 iS 16 45.6 COMP	eP 19 16 05.3 iS 16 23.4	iP 19 16 03.9 eS 16 18.6 COMP		eP 19 15 47.9 eS 15 52.0		
678		iP 20 17 11.8 e(S) 17 54.0 DILAT DEL ENE	iP 20 17 08.9 eS 17 51.7 DILAT	iP 20 17 03.0 iS 17 40.4 COMP	iP 20 17 04.9 iS 17 44.6 DILAT	eP 20 16 57.7 eS 17 31.4		
Explosión Mantos Blan- cos.		iP 20 27 40.8 i(S) 27 47.0 COMP DEL ENE	iP 20 27 44.0 iS 27 54.2	iP 20 27 42.0 eS 27 49.1 DILAT	e(P)20 28 02.5 e(S) 28 29.1	eP 20 27 57.0 iS 28 15.7		
679	13/12	eP 00 08 24.1 e(S) 08 56.6	iP 00 08 14.7 iS 08 40.0 DILAT	eP 00 08 13.1 iS 08 37.7	(S-P)=-16.7	iP 00 08 04 iS 08 21		
680		iP 02 03 17.7 eS 03 56.9 COMP DEL ESE	iP 02 03 18.2 iS 03 58.1	i(P)02 03 10.8 iS 03 45.4		iP 02 03 09.5 e(S) 03 42.8		
			eP 06 53 27.9 iS 53 52.6	e(P)06 53 32.8 e(S) 54 00.5	iP 06 53 12.1 i(S) 53 25.7	iP 06 53 26.4 S 53 47.1 COMP		
		e(P)07 44 02.1 i(S) 44 30.1	iP 07 43 49.8 iS 44 13.6	iP 07 43 53.4 eS 44 19.6	iP 07 43 36.2 COMP	iP 07 43 45.2 i(S) 44 07.9	P 07 44 19	eP 07 44 23.0 iS 45 17.0
		iP 13 27 33.2 iS 28 10.8	iP 13 27 34.1 iS 28 13.8	iP 13 27 26.9 iS 28 09.3	iP 13 27 37.0 iS 28 18.2	iP 13 27 23.7 iS 27 57.8		
681		eP 16 09 15.2 e(S) 09 25.1 COMP	iP 16 09 06.9 iS 09 11.9	i(P)16 09 14.6 iS 09 25.2	e(P)16 09 27.3 eS 09 46.9	eP 16 09 24.3 e(S) 09 41.9		
682		eP 16 16 10.2 e(S) 16 38.7	eP 16 15 59.3 iS 16 26.5	iP 16 15 59.2 iS 16 26.5 COMP	iP 16 15 46.0	iP 16 15 50.3 iS 16 10.2 DILAT		
683		eP 17 12 39.2 e(S) 13 00.3	iP 17 12 34.1 iS 12 53.1 DILAT	iP 17 12 29.0 iS 12 43.6 DILAT	e(P)17 12 36.9 e(S) 12 56.0	iP 17 12 26.9 iS 12 39.1 COMP		

N° orden	FECHA	ANT ANTOFAGASTA	MIC MICHILLA	SLN SALINAS	QUL QUILLAGUA	CAC CALAMA	LPB LA PAZ	ARE AREQUIPA
684	14/12	iP 00 45 43.0	iP 00 45 43.1	iP 00 45 35.0	iP 00 45 43.6	iP 00 45 33.6		
		iS 46 24.7	iS 46 25.3	iS 45 35.4	iS 46 25.1	iS 46 08.0		
		COMP DEL ESE			COMP	DILAT		
		e(P)02 54 42.1	iP 02 54 29.3	eP 02 54 38.2	eP 02 54 23.1	eP 02 54 35.3	P 02 53 58.5	iP 02 53 14.5
							iS 53 34.0	
							COMP	
		eP 03 09 55.9	iP 03 09 44.6	iP 03 09 47.1	iP 03 09 30.2	iP 03 09 39.2	P 03 10 13.8	eiP 03 10 16.7
			i(s) 10 10.2	eS 10 14.7	iS 09 46.8	iS 10 03.3		11 07.7
		DILAT	DILAT	DILAT	COMP	COMP	COMP	
685		eP 06 00 43.4	eP 06 00 43.1	iP 06 00 35.6	e(P)06 00 44.2	eP 06 00 34.7		
		eS 01 22.2	eS 01 23.3	eS 01 09.8	e(S) 01 24.7	eS 01 08.4		
				COMP				
686		eP 10 25 16.3	iP 10 25 06.2	iP 10 25 05.6	eP 10 24 53.8	iP 10 24 56.7	iP 10 25 23.8	iP 10 25 36.9
		iS 25 59.6	i(s) 41.6	iS 25 41.2	i(s) 25 19.3	iS 25 24.9	iS 26 14.5	iS 26 34.5
			DILAT	COMP		DILAT	COMP	
			iP 12 07 18.3		iP 12 07 12.1	iP 12 07 07.7		
			i(s) 07 39.3	(S-P)=19.3	i(s) 07 29.0	iS 07 21.6		
			i 07 41.4					
					COMP	DILAT		
		iP 20 33 31.0	eP 20 33 37.6	iP 20 33 38.3	eP 20 33 57.3	iP 20 33 52.8		
		iS 33 35.8	eS 33 49.2	e(s) 33 51.0	e(s) 34 20.9	iS 34 14.4		
				COMP				
687	15/12	eP 02 58 31.0	eP 02 58 19.1		iP 02 58 05.2	iP 02 58 10.4		
			eS 58 44.9	(S-P)=28		iS 58 30.9		
688		eP 06 14 58.1			eP 06 14 51.0	iP 06 14 42.3		
		e(s) 15 18.0		(S-P)=14	e(s) 15 08.0	iS 14 52.7		
						DILAT		
		eP 06 32 28.6			eP 06 32 21.1	eP 06 32 14.6	(P)06 33 14	iP 06 33 16.3
		i 32 29.2			eS 33 02.3	eS 32 54.0	eL 40 24	iS 34 41.0
		eS 33 15.7						
		eP 06 57 08.2			iP 06 56 42.9	iP 06 56 49.3	P 06 57 30.7	iP 06 57 38.0
		i 57 09.5		(S-P)=28		iS 57 10.1	i(s) 58 54.5	iS 58 35.0

N° orden	FECHA	ANT ANTOFAGASTA	MIC MICHILLA	SLN SALINAS	QUL QUILLAGUA	CAC CALAMA	LPB LA PAZ	ARE AREQUIPA
688	14/12	eP 07 04 49.0 e 05 16.0		(S-P)=30	iP 07 04 21.6	eP 07 04 27.5 iS 04 48.1		
689	15/12	eP 21 53 54.7 eS 54 31.5	eP 21 53 55.9 e 54 18.6 iS 54 32.7	eP 21 53 48.1 iS 54 20.3		eP 21 53 45.7 eS 54 17.3		
690	16/12	iP 03 14 28.4 e 14 45.7	eP 03 14 28.4 i 14 29.4 iS 14 46.6	iP 03 14 20.7 iS 14 32.5	iP 03 14 41.9 i(S) 14 58.7	iP 03 14 24.4 iS 14 38.9		
			COMP	COMP		DILAT		
			eP 19 33 44.2 iS 34 11.1	eP 19 33 43.0 eS 34 11.2	eP 19 33 32.4 eS 33 51.7	e 19 33 33.1 iP 19 33 33.6 iS 33 54.0		
691		eP 20 13 14.5 i(S) 13 52.2	eP 20 13 15.2 eS 13 54.6	eP 20 13 07.8 e 13 33.1 i(S) 13 41.1		e(P) 20 13 06.4 e(S) 13 39.5		
692			iP 21 40 23.2 eS 40 44.7	eP 21 40 22.0 iS 40 42.8	S-P=15.4	e(P) 21 41 13.0 iS 41 27.2		
693			eP 23 32 59.7 eS 33 23.7 e 33 25.4	eP 23 32 58.2 eS 33 21.3	S-P=17	iP 23 32 48.6 iS 33 04.7		
694	17/12	iP 03 56 30.7 i(S) 56 51.1 i 56 55.1	iP 03 56 16.9	eP 03 56 27.3 eS 56 45.7	iP 03 56 20.0 S 56 32.0	iP 03 56 27.5 iS 56 45.9	P 03 57 38 S 58 53	iP 03 57 25.0 iS 58 26.0
			eP 05 43 31.3 iS 43 55.2	eP 05 43(31.3) e(S) 44 01.9	iP 05 43 19.3 iS 43 35.3	eP 05 43 22.8 eS 43 41.3		
695			eP 09 23 52.0 eS 24 14.2	eP 09 23 51.4 iS 24 13.1	e(P) 09 23 43.3 e(S) 23 58.0	eP 09 23 41.9 iS 23 55.8		

Nº orden	FECHA	ANT ANTOFAGASTA	MIC MICHILLA	SLN SALINAS	QUL QUILLAGUA	CAC CALAMA	LPB LA PAZ	ARE AREQUIPA
695	17/12	eP 10 13 43 i 13 48.3 e(S) 14 37.5	eP 10 13 53.4 e 13 59.8 i 14 02.8 e(S) 14 53.8 i 15 05.4 i 15 11.9	eP 10 13 49.0 e 14(28.8) e(S) 14 44.4	iP 10 14 08.1 eS 15 18.6	eP 10 13 57.5 eS 15 01.6	eP 10 14 51 eL 23 24	
					DILAT			
696			eiP 11 34 03.2 i 04.7 iS 34 23.2 COMP	eP 11 34 04.4 eS 34 24.5	iP 11 33 52.8 iS 34 05.5	iP 11 33 54.6 iS 34 08.4		
					DILAT	(COMP)		
697			iP 12 41 35.1 COMP	iP 12 41 45.3 i(S) 41 59.7 DILAT	eiP 12 41 45.5 (eS) 41 58.7 (DILAT)	iP 12 41 49.2 e(S) 42 04.9 COMP		
698		eP 14 10 20.1 e 10 34.5 e 38.7	e(P) 14 10 11.3 eS 10 34.5	eP 14 10(11.1) e 10 31.3 e(S) 33.3	iP 14 10 03.0 iS 10 18.4	iP 14 10 01.5 iS 10 16.6	P 14 07 23 L 22 06	
					DILAT	(DILAT)		
699		eP 14 59 00.5 i(S) 59 27.5 i 59 34.7	iP 14 58 51.4	iP 14 58 50.4 S 59(12.2)	iP 14 58 49.5		P 14 59 43 S 15 00 27	iP 14 59 50.0 iS 15 00 54.5
			DILAT	DILAT				
700	18/12	eP 02 46 28.0 eS 46 55.1	eP 02 46 26.2 iS 46 52.7	eP 02 46 19.8 iS 46 41.3	eP 02 46 29.8 i 46 57.1 e(S) 58.3	eP 02 46 19.4 i 46 38.1 iS 46 40.1		
701		iP 11 28 49.0 iS 29 03.5	iP 11 28 54.4 iS 29 13.8	iP 11 28 47.4 i(S) 29 00.5 SAT	eP 11 29 06.8 iS 29 36.7	iP 11 28 57.0		
			COMP	DILAT		COMP		
702			iP 13 00 31.3 iS 00 08.0	eP 13 00 24.0 i 00 50.4 iS 00 55.2	iP 13 00 35.8 iS 01 15.2	iP 13 00 24.7 iS 00 56.4		
			COMP	DILAT	(COMP)	COMP		
703		e(P) 16 45 52.4 i 45 53.4 eS 46 15.9	P 16 45 47.3 eS 46 07.4	iP 16 45 41.1 eS 45 58.6	eP 16 45 45.9 eS 46 06.2	iP 16 45 36.2 i 45 48.5 i(S) 45 50.9		
				DILAT		COMP		

Nº orden	FECHA	ANT ANTOFAGASTA	MIC MICHILLA	SLN SALINAS	QUL QUILLAGUA	CAC CALAMA	LPB LA PAZ	ARE AREQUIPA
704	18/12		eP 17 32 02.5 eS 32 26.9	eP 17 32 03.2 iS 32 28.2	iP 17 31 51.3 iS 32 06.6	iP 17 31 54.3 iS 32 12.2		
					COMP	DILAT		
705		iP 21 38 03.0 eS 38 39.8	eP 21 38 03.8 eS 38 41.0	eP 21 37 56.4 S 38 28.9	eP 21 38 06.7 eS 38 45.4	eP 21 37 56.4 eS 38 27.9		
						(COMP)		
706	19/12		eP 02 33 11.7 eS 33(27.1)	iP 02 33 05.8 i(S) 33 16.7 e 33 17.4	eP 02 33 17.8 i 33 37.1 i(S) 33 37.7	eP 02 33 06.8 iS 33 18.2		
				DILAT				
707		eP 11 19 53.9 e(S) 21 16.0	iP 11 19 41.2 e(S) 20 51.4 i 20 57.6	eP 11 19 50.7 eS 21 07.4	eP 11 19 34.2 eS 20 38.9	e(P)11 19 47.9 e(S) 21 02.6 i 21 04.9		iP 11 18 28.7 iS 46.0
			DILAT					
			eP 12 24(06.1) e(S) 24 26.2	e(P)12 24 05.7 iS 24 33.0	eP 12 23 49.5 i(S) 24 03.9	iP 12 23 57.5 iS 24 18.8		
						COMP		
		e(P)21 34 23.9 e(S) 34 44	eP 21 34 02.3 eS 34 14.7	e(P)21 34 11.9 eS 34 31.5	eP 21 34 01.3 e(S) 34 11	eP 21 34 11.4 iS 34 30.7		
						COMP		
708	20/12	eP 01 14 54.7 eS 15 19.3	iP 01 14 49.4 iS 15 10.9	iP 01 14 45.3 iS 15 02.3	S-P-22.7	iP 01 14 40.5 SAT		
			DILAT	DILAT		COMP		
		iP 01 45 39.2 iS 46 13.0	eP 01 45 33.4 iS 46 03.0	eP 01 45 29.0 eS 45 57.1	S-P-25.8	eP 01 45 22.6 iS 45 43.8		
				DILAT		DILAT		
709			eP 06 49 03.5 eS 49 24.8	eP 06 49 02.5 eS 22.2	S-P-17.1	e(P)06 48 53.6 iS 49 06.8		
710			e(P)08 43 50.7 e(S) 44 29.6	e(P)08 43 57.1 e 44 52.5 e(S) 44 57.0		iP 08 43 51.1 eS 44 40.6 i 44 46.5	iP 08 43 18.4 S 43 45	iP 08 43 19.0 iS 43 46.5
						COMP		
711		iP 15 45 58.0 i 45 59.7 iS 46 23.4	iP 15 45 49.2 S SAT	iP 15 45 48.0 S SAT		iP 15 45 40.8 S SAT	P 15 46 49.4 S 48 21	iP 15 46 51.3 i 47 03.0 iS 48 01.0
			DILAT	DILAT		COMP		

N° orden	FECHA	ANT ANTOFAGASTA	MIC MICHILLA	SLN SALINAS	QUL QUILLAGUA	CAC CALAMA	LPB LA PAZ	ARE AREQUIPA
712	20/12	e(P) 16 36 06.7 eS 36 27.9	iP 16 35 55.8 iS 36 13.8	iP 16 35 54.9 iS 36 11.7		iP 16 35 47.1 SAT		
			DILAT	(COMP)		DILAT		
713		iP 22 44 40.8 e 44 47.2 i(S) 44 54.2 i 45 36.8	eP 22 44 28.1 iS 45 00.7	eP 22 44 33 e(S) 45 02	iP 22 44 14.1 S 44 20.0	e(P) 22 44 25.9 e(S) 44 39.1	iP 22 44 16.5 iS 44 51	iP 22 44 22.6 i(S) 45 00.0
					COMP			
		e(P) 23 48 (58)	eP 23 48 41.0 iS 49 03.4	eP 23 48 37.4 e 48 39.0 e(S) 49 01.0	eiP 23 48 26.2 S 48 41.2	iP 23 48 35.8 iS 48 58.0	P 23 49 14 e(S) 50 36	iP 23 49 16.4 iS 50 09.0
					COMP	DILAT		
714	21/12	iP 01 04 36.2 iS 04 50.1	iP 01 05 39.3	iP 01 04 33.0 SAT	iP 01 04 49.8 SAT	iP 01 04 41.2 SAT	P 01 06 02.5 (S) 07 08.0	iP 01 06 01.0 i(S) 07 21.0
			COMP	COMP	DILAT	COMP		
715		eP 01 49 04.5 e(S) 32.0	eP 01 48 52.7 eS 49 15.5	e(P) 01 48 55.2 eS 49 22.4	iP 01 48 38.8 i(S) 53.1	iP 01 48 46.8 iS 49 06.8		
					COMP	DILAT		
716		iP 04 21 26.1 iS 21 40.0	iP 04 21 23.1 iS 21 35.8		eP 04 21 32.4 e 50.6 e(S) 52.2	iP 04 21 24.6 iS 21 37.5		
			DILAT			COMP		
717		eP 09 57 46.5 e(S) 57 57.6	eP 09 57 38.1 eS 57 43.4 i 57 44.8		eP 09 57 57.6 iS 58 18.2	iP 09 57 58.3 eS 58 18.2 i 58 21.1		
						COMP		
718	22/12	eP 14 56 35.5 i 56 35.9 eS 57 18.2		eP 14 56 28.1 eS 57 06.0	iP 14 56 32.4 e(S) 57 13.3	iP 14 56 23.6 eS 56 58.5		
					COMP	(COMP)		
719	23/12	iP 06 32 31.6 eS 34 02.0		iP 06 32 30 e(S) 33 45.0 i 33 59.5		iP 06 32 30.6 iS 33 58.2	P 06 33 15.5 S 35 23	iP 06 33 31.8 i 33 40.2 iS 35 53.0
				DILAT				
		eP 09 07 04.3 eS 07 40.1		iP 09 06 (56) eS 07 (23)		iP 09 06 44.6 iS 07 06.2	P 09 07 26.8 (S) 08 15	eP 09 07 37.2 iS 08 35.0
				DILAT		DILAT		

Nº orden	FECHA	ANT ANTOFAGASTA	MIC MICHILLA	SLN SALINAS	QUL QUILLAGUA	CAC CALAMA	LPB LA PAZ	ARE AREQUIPA
720	23/12	iP 11 12 56.7 eS 13 44		eP 11 12 48.3 i 12 48.5 SAT		iP 11 12 38.4 i 46.8 iS 13 12.8 COMP	iP 11 12 42.2 iS 13 20	iP 11 12 57.2 iS 13 47.0
		eP 17 01 44 e(s) 02 45		eP 17 01 37.0 e 02 17.3 e(s) 02 31.1		eP 17 01 29.7 iS 02 18.3	iP 17 01 04 S 32	iP 17 01 11.6 iS 01 44.5
	24/12	iP 16 58 02.4 iS 58 33.5		S-P=23		eP 16 57 42.7 iP 45.7 i 47.6 iS 58 02.5 i 58 12.6	eP 16 58 45 (s) 59 43	
721	25/12	iP 08 49 50.1 iS 50 42		DILAT iP 08 49 42 S SAT		iP 08 49 34.9 i(s) 50 07.7 COMP	iP 08 49 22.5 S 52	iP 08 49 29.8 i(s) 50 06.4
		iP 09 51 36.7 iS 51 59		(DILAT) iP 09 51 27 SAT		iP 09 51 23.2 SAT	P 09 52 40.0 S 54 18	eP 09 52 41.3 i 57.0 e 53 11.0 iS 55.6
723		iP 17 57 15.7 iS 57 38.0		DILAT iP 17 57 18.3 S 57 34.3		iP 17 57 26.4 S SAT	P 17 58 46.0 S 18 00 23	eP 17 58 47.0 i 59 06.6 i(s) 00 25.2 e(s) 52.0
				(DILAT)		COMP		
	26/12	eP 05 31 32.9 eS 32 38.1				eP 05 31 26.6 eS 32 30.0		iP 05 30 26.3 iS 30 43.6
724	27/12	eP 04 32 34.3 eS 32 56.0	eP 04 32 26.7 eS 32 43.1	iP 04 32 24 iS 32 39		iP 04 32 20.8 iS 32 31.8		
				DILAT		COMP		
725		iP 09 44 23.2 iS 44 33.7	iP 09 44 16.7 e(s) 44 23.4	iP 09 44 24		eP 09 44 34.6 i 44 44.8 i(s) 44 53.4		
			DILAT	COMP				
	30/12	eP 07 12 37.4 iS 13 04.0		iP 07 12 26.6 iS 12 48.2 i 13 03.6		P 07 13 40		eP 07 13 23.5 iS 14 27.0