

## I N S T I T U T O G E O F I S I C O D E L P E R U

MINISTERIO DE FOMENTO

ÑAÑA PRELIMINARY BULLETIN N° 08-63

APARTADO N° 3747, LIMA - PERU

AUGUST - 1963

---

Unless otherwise noted, readings refer to 1st. motion at Ñaña

---

1963

AUGUST 01 05 16 29 (S 05 17 46), 06 32 45 (S 06 33 16), 16 47 11 (S 16 47 18),  
18 31 44 (S 18 32 42).

AUGUST 02 03 40 43 (S 03 41 03), 04 56 58 (S 04 57 28), 05 10 28 (S 05 24 39),  
(S 05 25 46).

AUGUST 03 02 11 56 (S 02 12 12), 12 50 10, 04 17 44 (S 04 18 17), 06 22 32,  
07 22 33 (S 07 22 50), 07 30 48 (S 07 30 56), 10 29 49 (S 10 36 16),  
22 33 34 (S 22 33 43).

AUGUST 04 07 29 21 (S 07 29 29), 12 09 32 (S 12 11 15), 17 06 40 (S 17 07 10),  
20 37 21.

AUGUST 05 00 12 23 (S 00 13 19), 07 32 28, 08 47 44 (S 08 48 17).

AUGUST 06 02 32 31 (S 02 32 52), 08 54 55 (S 08 55 17), 09 18 28, 09 33 57,  
10 28 25 (S 10 29 07), 13 22 21 (S 13 22 43), 17 12 45, 18 31 44,  
(S 18 32 37), 18 44 27.

AUGUST 07 08 54 35 (S 08 54 55), 11 33 16, 14 02 16, 17 04 52 (S 17 04 57),  
20 40 51 (S 20 41 40).

AUGUST 08 02 29 15 (S 02 30 09), 03 42 18 (S 03 42 30), 16 44 44, 18 08 29,  
21 25 36 (S 21 25 59), 21 31 07 (S 21 31 25), 23 36 37, 23 54 08,  
(S 23 54 31).

AUGUST 09 03 54 40, 06 52 54 (S 06 53 04), 15 43 59.

AUGUST 10 07 57 04, 09 16 07 (S 09 16 24), 10 20 52, 11 55 21 (S 11 55 44),  
18 17 35, 18 42 38.

AUGUST 11 06 33 12, 08 54 41 (S 08 55 12), 10 08 35, 15 42 06 (S 15 42 24),  
17 00 37, 17 47 15, 20 25 14.

AUGUST 12 11 19 09 (S 11 19 56), 16 58 51 (S 16 59 38), 18 34 34, 19 06 50.

AUGUST 13 05 12 54, 12 42 06 (S 12 44 04), 18 21 55, 23 26 08 (S 23 27 01).

AUGUST 14 14 35 36 (S 14 37 47), 19 03 30.

AUGUST 15 02 52 27 (S 02 53 15), 06 30 53, 01 00 64, 14 36 43 (S 14 37 16),  
17 27 00.

AUGUST 16 01 01 05.

1963

AUGUST 17 00 25 18, 11 32 25, 11 40 54, 17 05 15 (S 17 06 14), 23 45 30.  
AUGUST 18 01 26 30 (S 01 27 02), 02 20 46, 10 27 42 (S 10 28 13), 23 09 22,  
(S 23 10 24).  
AUGUST 19 02 37 05 (S 02 37 57), 05 30 54 (S 05 31 46), 07 03 04 (S 07 03 03),  
(S 07 03 59), 08 10 09, 16 42 31.  
AUGUST 20 10 44 07, 18 57 46 (S 18 58 16), 21 29 07 (S 21 29 15).  
AUGUST 21 00 07 22, 03 45 04 (S 03 49 48), 11 32 01 (S 11 32 47).  
AUGUST 22 02 32 07 (S 02 32 27), 04 50 55, 11 29 12 (S 11 29 26), 15 55 19, 16  
48 46, 18 16 08 (S 18 32 06), 23 24 03.  
AUGUST 23 04 23 04, 08 45 07 (S 08 45 34), 10 39 48, 13 38 22.  
AUGUST 24 00 50 58 (S 00 51 37), 01 45 04 (S 01 47 53), 05 38 41 (S 05 38 51),  
05 41 08.  
AUGUST 25 12 30 27 (S 12 32 54), 14 00 27 (S 14 00 37), 15 19 20 (S 15 19 45),  
15 23 17 (S 15 23 41), 20 15 42 (S 20 15 57), 22 28 18.  
AUGUST 26 05 15 05 (S 05 15 28), 10 05 39, 16 01 50 (S 16 02 01), 16 17 18, 20  
05 37 (S 20 06 34), 22 04 53 (S 22 05 26), 23 52 10.  
AUGUST 27 03 30 17 (S 03 39 10), 04 58 50, 10 11 28 (S 10 11 42), 12 59 01, 19  
08 57 (S 19 11 02).  
AUGUST 28 13 07 47 (S 13 08 26).  
AUGUST 29 09 13 19, 15 32 10 (S 15 33 16), 19 26 57, 20 59 13 (S 20 59 45), 22  
51 33 (S 22 51 50), 23 57 18.  
AUGUST 30 00 46 40, 02 09 01.  
AUGUST 31 04 50 22, 10 31 37 (S 10 32 46), 10 45 58, 12 43 41 (S 12 44 48), 19  
00 45 (S 19 00 55), 22 35 06 (S 22 35 19).

-----o o o-----

I N S T I T U T O G E O F I S I C O D E L P E R U  
 MINISTERIO DE FOMENTO  
 ÑAÑA PRELIMINARY BULLETIN N° 09-63  
 APARTADO N° 3747, LIMA - PERU  
 SEPTEMBER - 1963

---

Unless otherwise noted, readings refer to 1st. motion at Ñaña

---

1963

SEPTEMBER 01 09 29 19 (S 09 29 52), 09 31 12 (S 09 31 56), 11 15 19, 11 31 54,  
 19 16 50 (S 19 16 59).

SEPTEMBER 02 01 54 10, 04 10 51 (S 04 11 22), 11 06 23.

SEPTEMBER 03 00 46 28 (S 00 46 40), 16 33 09, 18 26 16, 18 41 55, 22 12 33.

SEPTEMBER 04 11 26 15 (S 11 26 50), 13 44 38 (S 13 54 55).

SEPTEMBER 05 04 40 03 (S 04 40 16), 05 29 46, 06 27 15.

SEPTEMBER 06 03 23 31, 04 48 22, 06 23 29, 13 43 19, 14 01 16, 16 47 15.

SEPTEMBER 07 02 13 49 (S 02 13 56), 09 38 56, 18 53 41.

SEPTEMBER 08 06 27 07 (S 06 27 25), 09 13 54, 11 41 43, 18 31 45, 21 15 54, 22  
 59 53 (S 23 00 33).

SEPTEMBER 09 00 22 17, 01 05 45, 03 04 52, 10 57 21, 14 50 47 (S 14 51 04), 21  
 41 43 (S 21 41 51), 22 29 25.

SEPTEMBER 10 07 37 12 (S 07 38 21),

SEPTEMBER 11 02 43 49, 07 38 20, 09 19 24, 10 26 22, 12 21 12 (S 12 21 20), 15  
 03 58, 23 17 27.

SEPTEMBER 12 02 31 57, 14 12 31 (S 14 12 48).

SEPTEMBER 13 04 51 43, 19 18 45.

SEPTEMBER 14 11 51 04, 20 36 47.

SEPTEMBER 15 05 12 28, 10 27 38 (S 10 27 52), 21 25 08 (S 21 25 48).

SEPTEMBER 16 01 54 55.

SEPTEMBER 17 02 24 07 (S 02 25 09), 05 55 05 (S 05 55 21), 07 37 03 (S 07 38  
 48), 10 55 49 (S 10 55 60), 13 18 35 (S 13 19 07), 15 00 25 (S 15  
 00 38), 16 08 41 (S 16 08 58), 19 35 00, 20 11 23 (S 20 11 47).

SEPTEMBER 18 04 13 54, 10 32 36, 12 53 03 (S 12 53 21), 13 12 52, 19 26 45 (S  
 19 27 18), 19 54 49 (S 19 55 15).

SEPTEMBER 19 00 08 59 (S 00 10 46), 04 09 15 (S 04 10 04), 05 25 42, 09 30 36  
 20 07 50.

1963

SEPTEMBER 20 04 00 53 (S 04 01 03), 05 33 57 (S 05 34 30), 07 28 13, 09 02  
28, 13 59 39 (S 13 59 54), 14 44 18 (S 14 46 36), 17 22 25 (S  
17 22 28), 23 36 35.

SEPTEMBER 21 06 39 20.

SEPTEMBER 22 04 57 32, 09 43 17 (S 09 43 54), 18 56 21 (S 18 56 38).

SEPTEMBER 23 06 33 41 (S 06 33 59), 07 18 10, 14 08 52, 16 09 37, 19 22 12  
(S 19 22 51), 21 13 00 (S 21 14 08), 23 06 31.

SEPTEMBER 24 10 29 33 (S 10 29 47), 15 02 25, 16 30 46, 17 00 34 (S 17 00  
49), 18 07 33, 19 44 16, 20 41 25, 20 58 17 (S 20 58 37), 23  
45 02.

SEPTEMBER 25 00 22 06 (S 00 22 34), 00 58 40, 04 37 01, 08 46 16, 16 24 52  
(S 16 25 09).

SEPTEMBER 26 03 51 30, 03 55 23 (S 03 55 48), 04 35 15, 10 27 14, 12 42 50  
(S 12 43 12), 12 45 50, 19 13 02, 21 49 23, 23 21 43 (S 23 21  
59).

SEPTEMBER 27 10 09 40, 11 33 33, 13 21 27, 22 01 57 (S 22 02 07).

SEPTEMBER 28 03 42 46, 10 19 09, 14 50 34, 21 43 40 (S 21 43 47).

SEPTEMBER 29 01 25 19 (S 01 25 42).

SEPTEMBER 30 03 51 15, 07 03 36, 14 14 56, 17 27 28.

-----o o o-----

Seismological Department

I N S T I T U T O G E O F I S I C O D E L P E R U

MINISTERIO DE FOMENTO

ÑAÑA PRELIMINARY BULLETIN N° 10-63

APARTADO N° 3747, LIMA - PERU

OCTOBER - 1963

---

Unless otherwise noted, readings refer to 1st. motion at Ñaña

---

1963

OCTOBER 01 00 47 48 (S 00 48 25), 01 30 33, 08 31 25 (S 08 31 41), 14 00 47,  
17 12 05.

OCTOBER 02 01 18 01, 02 02 42, 02 06 42, 03 29 15, 06 45 11, 13 17 40, 14 25  
21, 15 55 47, 19 56 04.

OCTOBER 03 05 21 16, 07 36 51 (S 07 37 08), 13 26 07, 14 37 52, 15 58 25, 17  
04 10, 23 44 14.

OCTOBER 04 01 17 36, 07 07 30, 11 27 40, 18 43 03 (S 18 43 57).

OCTOBER 05 02 15 32, 02 49 14, 04 38 60 (S 04 36 26), 11 17 36 (S 11 18 04),  
12 35 42, 16 56 39, 22 58 18 (S 22 58 33).

OCTOBER 06 06 52 25 (S 06 52 48), 07 14 32, 10 56 35 (S 10 57 20), 14 52 49,  
17 20 27, 20 47 30.

OCTOBER 07 12 44 09 (S 12 44 20), 20 24 20 (S 20 24 44).

OCTOBER 08 02 17 34 (S 02 18 00), 04 52 45 (S 04 52 54), 05 06 15, 06 27 02,  
10 33 04, 11 18 30, 11 46 48, 13 31 39, 16 17 30 (S 16 17 57), 18  
39 50, 23 27 49 (S 23 28 11).

OCTOBER 09 05 56 58, 11 35 56 (S 11 36 05), 11 49 47 (S 11 49 57), 14 27 54.

OCTOBER 10 10 04 34, 11 12 10, 13 39 30, 14 06 17, 15 50 27, 21 44 01 (S 21  
44 19).

OCTOBER 11 01 52 31, 03 07 32, 04 33 33, (S 04 33 43), 09 25 22 (S 09 25 58),  
20 37 23 (S 20 37 44).

OCTOBER 12 11 46 03, 12 17 24, 19 54 31, 20 22 54, 21 30 56.

OCTOBER 13 05 37 03, 14 43 22 (S 14 43 44), 16 18 56.

OCTOBER 14 03 38 18 (S 03 38 48, 05 41 36 (S 05 43 23), 13 11 57, 13 40 45,  
15 07 42, 16 40 48 (S 16 41 04.)

OCTOBER 15 03 06 08, 12 50 05, 15 00 57, 16 24 08, 21 22 26 (S 21 22 41, 22  
04 50, 23 01 08.

1963

OCTOBER 16 03 24 40, 16 02 32, 17 15 34, 22 27 45.  
OCTOBER 17 01 25 58, 02 15 18, 14 15 18 (S 14 15 28), 23 43 39.  
OCTOBER 18 03 23 55 (S 03 24 20), 12 32 15.  
OCTOBER 19 02 16 16.  
OCTOBER 20 00 28 22, 01 12 15, 03 41 08 (S 03 41 24), 08 11 06, 08 47 48,  
10 32 10, 11 46 55, 14 01 51, 19 41 31.  
OCTOBER 21 03 55 39, 21 21 16 (S 21 21 29).  
OCTOBER 22 04 20 00, 04 27 16, 07 42 49, 11 01 47, 11 12 39.  
OCTOBER 23 03 13 25, 04 28 40, 06 55 29, 09 34 56, 11 52 19 (S 11 52 49),  
12 31 09, 20 26 37.  
OCTOBER 24 06 48 04, 07 25 27, 07 46 24, 17 03 45, 19 39 02.  
OCTOBER 25 04 35 18, 14 05 26, 15 09 34 (S 15 10 04).  
OCTOBER 26 11 57 41, 12 59 02 (S 13 00 46), 19 15 12.  
OCTOBER 27 01 57 10, 07 06 33, 07 46 48 (S 07 47 51), 12 07 03, 14 41 11,  
18 25 09.  
OCTOBER 28 02 50 55 (S 02 51 13), 03 11 09, 03 41 50, 06 30 23, 16 02 25,  
16 31 14 (S 16 31 22 , 19 45 50 (S 19 46 01).  
OCTOBER 29 02 34 47, 15 52 41, 17 26 56 (S 17 27 07), 22 38 41.  
OCTOBER 30 01 19 18 (S 01 20 34), 04 04 24, 04 13 22, 12 45 34, 15 36 47,  
OCTOBER 31 02 41 29, 03 57 42, 16 09 05 (S 16 09 24), 22 26 13, 23 20 57,  
(S 23 22 13).

-----o o o-----

## I N S T I T U T O G E O F I S I C O D E L P E R U

MINISTERIO DE FOMENTO

ÑAÑA PRELIMINARY BULLETIN N° 11-63

APARTADO 3747, LIMA - PERU

NOVEMBER - 1963

---

 Unless otherwise noted, readings refer to 1st. motion at Ñaña
 

---

1963

NOVEMBER 01 02 30 13, 04 51 47, 12 19 30 (S 12 20 35), 15 14 42, 15 50 14,  
 23 00 27, 23 33 28 (S 23 33 44).

NOVEMBER 02 03 00 58, 03 36 42, 07 32 41 (S 07 33 01), 10 20 26 (S 10 21 04),  
 16 07 44 (S 16 08 09), 19 25 18 (S 19 25 42).

NOVEMBER 03 03 12 13 (S 03 13 45), 04 00 07, 04 26 42, 06 56 10, 07 39 20, 12  
 04 29 (S 12 06 02), 14 36 34, 15 38 33 (S 15 38 44), 16 30 56, 20  
 37 26.

NOVEMBER 04 01 36 44, 03 30 18 (S 03 31 05), 05 42 38, 06 07 36, 06 38 21, 12  
 07 32 (S 12 08 55), 13 55 19, 18 52 45 (S 18 53 27), 22 36 42, 22  
 45 18.

NOVEMBER 05 00 24 35 (S 00 24 59), 19 40 29.

NOVEMBER 06 01 01 53 (S 01 02 34), 01 30 37 (S 01 32 09), 06 07 05, 09 20 50,  
 15 57 22, 18 35 24 (S 18 36 50), 23 43 34 (S 23 44 10).

NOVEMBER 07 20 53 20, 21 34 05 (S 21 34 16).

NOVEMBER 08 19 24 54 (S 19 26 26), 23 43 02 (S 23 43 21).

NOVEMBER 09 07 44 31, 08 37 32, 21 17 11, 21 52 20 (S 21 53 40), 22 44 05 (S  
 22 44 12), 23 15 50 (S 23 17 25).

NOVEMBER 10 01 02 20 (S 01 03 57), 01 38 23 (S 01 39 44), 05 00 28, 10 29 35,  
 15 25 25, 17 36 51, 19 39 32.

NOVEMBER 11 00 34 37, 16 52 46 (S 16 53 11), 19 55 50 (S 19 57 11), 20 22 33  
 (S 20 25 51), 23 45 16.

NOVEMBER 12 09 56 29, 12 28 24, 16 54 30, 17 05 47, 21 10 17.

NOVEMBER 13 04 19 39, 12 59 17.

NOVEMBER 14 01 06 30, 12 24 58 (S 12 25 08), 17 03 02.

NOVEMBER 15 06 19 17, 18 25 13.

NOVEMBER 16 01 38 05, 02 40 19, 05 13 59 (S 05 14 33), 06 52 34, 07 17 42,  
 07 48 34, 12 18 31, 18 09 19 (S 18 11 09), 21 03 50.

---

---

1963

NOVEMBER 17 02 24 58, 13 04 04, 15 26 14.  
NOVEMBER 18 07 19 06 (S 07 20 06), 12 11 04 (S 12 11 33), 14 47 54, 18 58 42,  
20 32 13.  
NOVEMBER 19 04 20 55, 17 30 11, 22 38 54, 22 40 25.  
NOVEMBER 20 07 11 46, 19 48 56 (S 19 49 08).  
NOVEMBER 21 06 36 45, 11 34 49.  
NOVEMBER 22 12 42 27, 15 04 58, 16 42 41, 18 59 55, 19 18 51.  
NOVEMBER 23 01 42 51 (S 01 43 43), 08 17 13 (S 08 17 28), 18 10 05 (S 18 11  
46), 20 15 16, 23 03 32 (S 23 03 40).  
NOVEMBER 24 01 56 26 (S 01 56 59), 05 40 26, 11 24 53, 20 51 29.  
NOVEMBER 25 06 58 22, 21 19 32 (S 21 20 09).  
NOVEMBER 26 01 42 08, 02 33 29, 07 11 44.  
NOVEMBER 27 02 21 17 (S 02 22 39), 03 18 08 (S 03 18 25), 05 04 53 (S 05 05  
05), 07 44 31, 09 00 34 (S 09 01 03), 08 09 14, 10 11 43, 23 42  
12.  
NOVEMBER 28 04 16 42 (S 04 17 18), 05 56 47, 09 49 35, 15 18 38, 19 24 25,  
(S 19 24 37), 20 17 32.  
NOVEMBER 29 01 10 45 (S 01 10 59), 01 59 44, 14 04 34, 19 28 09.  
NOVEMBER 30 04 18 05, 08 53 35 (S 08 53 57), 10 22 52, 23 24 22.

-----o o o-----



I N S T I T U T O G E O F I S I C O D E L P E R U

MINISTERIO DE FOMENTO

ÑAÑA PRELIMINARY BULLETIN N° 12-63

APARTADO 3747, LIMA - PERU

DECEMBER - 1963

Unless otherwise noted, readings refer to 1st. motion at Ñaña

1963

DECEMBER 01 01 41 47, 09 38 29, 11 13 39, 15 18 05, 16 09 09, 17 23 06, 18 49  
51.

DECEMBER 02 10 56 02, 15 41 13.

DECEMBER 03 02 48 22, 13 01 23, 23 06 41 (S 23 09 19).

DECEMBER 04 03 14 51 (S 03 1613), 04 22 50 (S 04 24 14), 16 06 19, 16 07 34,  
(S 16 11 21).

DECEMBER 05 01 29 11 (S 01 29 31), 03 18 37, (S 03 18 57), 03 56 19, 04 29 58  
11 34 11 (S 11 37 49), 18 06 45, 20 23 18, 21 53 38.

DECEMBER 06 02 20 20, 04 00 47, 04 16 22, 14 21 41, 18 16 00, 19 00 27 (S 19  
00 38).

DECEMBER 07 24 04 31, 11 29 10, 16 17 50, 17 28 04, 22 46 34.

DECEMBER 08 07 16 18 (S 07 16 26), 08 47 54, 12 23 13 (S 12 23 39), 12 38 49,  
(S 12 38 58), 17 37 23, 22 54 13.

DECEMBER 09 01 46 23, 03 47 51, 04 31 25, 05 58 44, 22 51 15, 23 28 42 (S 23  
29 47).

DECEMBER 10 03 50 31 (S 03 51 59), 06 40 49, 07 27 41 (S 07 28 30), 10 27 23,  
14 52 04 (S 14 53 39), 15 57 41 .

DECEMBER 11 00 14 34, 03 02 02, 04 14 11, 04 54 04, 13 07 52, 17 08 13.

DECEMBER 12 00 43 00, 07 23 06, 12 55 37, 14 11 56, 20 58 36, 21 46 29.

DECEMBER 13 00 47 13, 01 23 37 (S 01 24 38), 04 17 49(S 04 19 36), 10 27 50,  
22 18 05, 22 59 02.

DECEMBER 14 00 09 14, 01 09 59 (S 01 10 47), 17 49 27, 19 16 05.

DECEMBER 15 06 56 05, 17 02 07, 19 53 41 (S 20 00 35), 23 12 39.

DECEMBER 16 02 11 32, 05 27 55, 15 56 17 (S 15 56 36), 16 43 34.

DECEMBER 17 02 47 11, 06 32 43, 13 14 19, 21 58 20.

DECEMBER 18 00 43 17, 01 43 23, 03 50 03, 05 58 12, 06 59 43, 12 49 55.

1963

DECEMBER 19 00 43 28 (S 00 43 39), 13 37 49, 14 56 03, 17 04 56 (S 17 05 53)  
18 33 25 (S 18 34 14), 18 53 60 (S 18 54 53), 19 25 52, 20 39 07  
21 25 38, 23 26 45.

DECEMBER 20 00 23 54, 08 54 23, 09 16 51, 10 49 56 (S 10 51 34), 15 28 07,  
17 05 39, 19 59 39 (S 19 59 49), 20 11 33.

DECEMBER 21 00 19 11, 06 12 31, 06 58 31, 11 53 04 (S 11 53 58), 13 29 13,  
16 31 30, 18 27 25.

DECEMBER 22 08 45 01, 12 42 17, 20 51 09, 21 58 08, 23 18 07, 23 38 37, (S  
23 38 50).

DECEMBER 23 00 32 47 (S 00 32 55), 22 11 52, 22 39 42, 22 48 26.

DECEMBER 24 02 43 04, 04 47 29, 12 48 37, 14 57 00 (S 14 57 09), 15 35 32,  
18 27 19.

DECEMBER 25 01 01 32, 17 51 00, 20 08 08, 21 54 49.

DECEMBER 26 00 06 55, 01 08 53, 02 00 54 (S 02 01 14), 04 05 23, 04 52 17,  
09 08 09, 10 35 09, 22 12 26.

DECEMBER 27 00 11 04, 01 45 37, 03 58 01 (S 03 58 17), 04 06 44 (S 04 07 00),  
14 26 11, 17 12 43 (S 17 12 47), 23 23 52.

DECEMBER 28 01 47 50 (S 01 48 39), 05 14 36 (S 05 14 49), 09 17 07, 10 17 39  
(S 10 17 47), 11 40 22, 12 07 32, 14 02 21, 18 07 38.

DECEMBER 29 03 45 22 (S 03 45 33), 07 06 11 (S 07 06 50), 09 38 34, 11 47 40,  
13 02 35, 14 31 37, 15 58 07 (S 15 58 46), 17 17 53 (S 17 19 52)  
19 16 23.

DECEMBER 30 01 17 59, 03 56 37, 10 33 06, 13 48 28, 13 52 48, 19 04 34, 23  
41 44 (S 23 43 34).

DECEMBER 31 06 06 40, 08 29 34, 09 56 06, 17 47 30, 17 53 43, 18 19 13, 19  
25 28.

-----o o-----