



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

NAÑA PRELIMINARY BULLETIN N° 01-64

APARTADO N° 3747, LIMA - PERU

JANUARY - 1964

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

1964

- JANUARY 01 01 05 11, 12 41 30, 12 49 12, 15 02 04, 15 59 40, 16 19 19 (S 16 20 12), 16 36 31, 20 16 45, 22 48 29.
- JANUARY 02 00 44 38 (S 00 44 47), 04 44 28, 06 35 57, 10 07 25, 15 38 12, 16 28 43, 16 32 15, 16 50 43, 18 32 42, 18 48 19.
- JANUARY 03 00 40 41, 00 58 38, 04 43 48, 06 07 52, 06 13 42, 06 34 07, 07 34 25, 13 29 25 (S 13 30 39), 16 23 06, 16 39 35, 17 18 00, 18 46 10, 20 33 12, 22 14 43.
- JANUARY 04 09 02 38, 13 25 15, 14 00 42, 18 14 23.
- JANUARY 05 00 30 49 (S 00 41 28), 06 15 03, 12 37 45, 13 19 50, 13 49 41 (S 13 50 18), 18 35 03 (S 18 35 48), 20 28 38, 21 50 27, 22 09 27.
- JANUARY 06 00 33 20, 01 48 29 (S 01 48 49, 06 14 26, 09 44 31, 22 16 19).
- JANUARY 07 06 23 34, 12 42 53, 22 36 19.
- JANUARY 08 01 44 03, 04 41 40, 08 55 27, 09 44 48, 11 24 35, 13 18 18, 19 58 40, 23 40 35.
- JANUARY 09 01 05 35, 02 11 39, 09 13 47, 10 36 20 (S 10 36 54), 15 19 31 (S 15 20 11), 18 50 53, 20 27 39, 21 23 33, 23 13 09.
- JANUARY 10 00 16 27, 04 51 47, 05 02 46, 05 39 07 (S 05 40 41), 12 28 41, 16 16 49 (S 16 17 36), 19 16 13, 22 12 22.
- JANUARY 11 07 38 07, 10 04 04, 13 19 50, 14 18 40, 14 42 46.
- JANUARY 12 06 44 25, 11 35 16, 12 46 10, 14 22 30 (S 14 23 00, 15 44 21 (S 15 44 31), 18 32 27.
- JANUARY 13 09 35 40, 10 54 43, 16 53 53.
- JANUARY 14 15 57 05, 16 00 19, 16 01 10.
- JANUARY 15 03 15 09, 05 03 29, 05 32 24, 06 43 45, 11 25 25, 13 03 29, 15 09 07, 20 20 39, 21 28 01, 21 55 19.
- JANUARY 16 02 28 28, 03 17 14 (S 03 17 27), 10 14 07, 14 42 04, 15 06 33, 16 14 49, 18 18 37 (S 18 19 39), 21 03 27.



1964

- JANUARY 17 04 32 14, 13 29 24, 15 59 15, 17 01 33.
- JANUARY 18 01 14 40, 06 55 09, 11 08 50, 12 24 36, 16 17 24, 21 49 07, 22 42 28.
- JANUARY 19 00 09 45, 06 21 51, 07 00 03, 11 45 06, 15 19 09, 15 45 06, 15 50 58 (S 15 51 47), 17 16 43, 22 33 05 (S 22 33 35, 23 53 58 (S 23 54 33)).
- JANUARY 20 01 52 12, 04 58 00, 08 27 58.
- JANUARY 21 03 55 50, 07 23 30, 12 37 32, 15 40 26, 15 53 13, 17 38 43.
- JANUARY 22 03 34 59 (S 03 35 09), 08 58 13, 12 55 03, 16 19 44.
- JANUARY 23 11 57 45, 16 02 59, 17 36 30.
- JANUARY 24 05 26 07 (S 05 26 41), 14 09 01, 15 22 17 (S 15 23 05), 15 29 08, 17 36 17, 21 31 15.
- JANUARY 25 03 50 17, 06 15 23 (S 06 15 41), 10 05 11, 15 44 57, 21 31 45 (S 21 31 58).
- JANUARY 26 09 11 04 (S 09 12 14), 18 19 38 (S 18 19 54), 22 42 37.
- JANUARY 27 00 20 43, 08 28 38, 19 12 27 (S 19 12 31), 21 58 19.
- JANUARY 28 00 43 33, 01 26 31, 05 19 36 (S 05 20 11), 06 02 30, 08 47 42, 09 02 41, 12 38 13, 13 05 07 (S 13 06 10), 14 28 18, 17 38 06, 19 40 36.
- JANUARY 29 02 32 48, 03 02 25, 05 37 17 (S 05 37 52), 06 38 15, 08 47 08.
- JANUARY 30 03 19 37, 08 30 05, 10 02 33, 17 01 41.
- JANUARY 31 02 06 07, 06 18 40 (S 06 19 08), 12 03 15 (S 12 03 45), 15 16 48, 20 51 03, 21 49 17.

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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
 M I N I S T E R I O D E F O M E N T O
 Ñ A Ñ A P R E L I M I N A R Y B U L L E T I N N ° 0 2 - 6 4
 A P A R T A D O N ° 3 7 4 7 , L I M A - P E R U
 F E B R U A R Y - 1 9 6 4

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

1964

- FEBRUARY 01 11 49 29 (S 11 51 05), 20 56 49 (S 20 56 58).
- FEBRUARY 02 00 28 26, 04 26 17, 06 36 11, 13 02 33 (S 13 02 42).
- FEBRUARY 03 10 29 19 (S 10 29 50).
- FEBRUARY 04 03 23 10 (S 03 23 49), 06 26 53, 07 40 15, 18 05 22, 18 37 55, 20 53 12.
- FEBRUARY 05 02 43 05, 04 14 27, 11 49 37, 11 50 41 (S 11 52 27), 11 57 58, 17 07 58, 21 16 35.
- FEBRUARY 06 02 43 08 (S 02 43 41), 04 30 24 (S 04 30 48), 04 40 11, 09 54 45, 13 20 42, 14 07 59, 14 19 00, 14 24 32, 15 39 32, 21 41 50.
- FEBRUARY 07 11 08 28, 13 17 18 (S 13 17 28), 23 42 21.
- FEBRUARY 08 05 44 22, 19 50 06.
- FEBRUARY 09 25 46 34, 10 59 11, 12 46 20, 19 57 55, 23 45 26.
- FEBRUARY 10 04 13 36 (S 04 13 50), 04 24 22 (S 04 24 32), 12 00 08.
- FEBRUARY 11 01 53 15, 04 09 01, 10 10 56, 17 23 30.
- FEBRUARY 12 02 10 34, 02 46 22, 13 07 27, 18 32 03 (S 18 32 26).
- FEBRUARY 13 05 12 07, 06 54 13, 09 12 27, 11 26 22.
- FEBRUARY 14 12 53 58, 14 38 03, 14 59 01, 15 48 08, 16 48 50, 21 18 29.
- FEBRUARY 15 04 47 12, 07 09 23, 07 15 12, 12 47 47, 22 22 21.
- FEBRUARY 16 00 07 11, (S 00 07 45), 01 26 40, 03 19 41, 04 23 30, 10 04 45 (S 10 05 35), 22 58 45.
- FEBRUARY 17 02 33 08.
- FEBRUARY 18 10 34 21, 14 10 21, 17 43 40.
- FEBRUARY 19 02 05 26 (S 02 05 37), 03 29 00, 05 50 44, 07 00 50, 07 27 58, 07 41 47, 07 57 01 (S 07 57 17), 10 26 57, 10 39 46 (S 10 40 01), 15 09 58 15 28 33, 22 46 52.

1964

FEBRUARY 20 01 35 45, 07 23 15 (S 07 23 48), 08 23 39, 10 58 18, 13 16 45, 15
43 02, 17 29 38, 18 54 55, 21 51 10.

FEBRUARY 21 07 37 58, 09 37 17, 12 43 23, 13 53 28.

FEBRUARY 22 07 40 47, 08 13 50, 13 56 30, 17 52 18.

FEBRUARY 23 00 39 28 (S 00 34 45), 03 08 58, 04 36 41, 07 34 56, 08 02 33, 12
00 12, 15 58 41.

FEBRUARY 24 01 16 32, 07 36 18 (S 07 36 31), 13 32 25, 13 50 51, 12 13 50 (S
12 13 56), 17 35 54, 18 40 39.

FEBRUARY 25 08 43 19, 08 48 06, 08 51 12, 10 28 56 (S 10 29 37), 22 20 17 (S
22 21 05).

FEBRUARY 26 02 48 53, 05 13 27, 09 33 14, (09 34 04,) 15 23 36, 16 27 09, 22
46 06, 23 42 29 (S 23 42 37).

FEBRUARY 27 02 41 16 (S 02 41 30), 06 46 35 (S 06 46 51), 07 15 20, 07 37 15
(S 07 37 38), 09 04 40, 15 30 45, 20 57 09 (S 20 58 08), 23 28 53
(S 23 28 24).

FEBRUARY 28 05 21 50 (S 05 22 01), 11 11 51 (S 11 12 20), 12 53 49 (S 12 54 32),
14 24 57, 14 35 28 (S 14 35 40), 17 54 46, 21 30 56.

FEBRUARY 29 07 43 05, 10 01 45 (S 10 01 55), 19 05 34 (S 19 05 57).

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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° 03-64
APARTADO N° 3747, LIMA - PERU
MARCH - 1964

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

1964

MARCH 01 00 09 30 (S 00 10 03), 07 24 06, 08 49 04, 18 08 12, 20 51 47.
MARCH 02 03 44 48 (S 03 45 37), 17 22 14 (S 17 23 60).
MARCH 03 06 02 48, 08 27 23, 17 01 50, 22 09 58 (S 22 10 23).
MARCH 04 01 21 40, (S 01 22 39), 13 05 57 (S 13 06 03).
MARCH 05 02 29 57, 09 12 25 (S 09 12 55), 09 17 14 (S 04 17 50), 14 26 16 (S 14 27 09), 15 47 27 (S 15 47 44).
MARCH 06 00 37 40 (S 00 37 54), 05 13 24 (S 05 14 23), 15 34 54, 15 36 23, 20 07 50, 21 08 11 (S 21 09 55).
MARCH 07 12 31 44, 12 32 23, 14 35 03 (S 14 35 40), 14 51 02 (S 14 51 18), 14 57 17 (S 14 57 31), 18 16 52 (S 18 17 28), 20 54 10 (S 20 54 49).
MARCH 08 00 13 41 (S 00 13 57), 02 22 00, 03 02 52, 09 11 09, 10 38 47 (S 10 39 03), 10 42 28, 10 23 11, 13 21 42 (S 13 21 58), 17 59 48 (S 18 00 00).
MARCH 09 01 04 54 (S 01 05 21), 01 33 03 (S 01 33 29), 05 50 13, 05 50 58 (S 05 51 07), 06 40 22 (S 06 40 39), 09 13 18 (S 09 13 31), 17 40 46 (S 17 40 57).
MARCH 10 01 14 52, (S 01 15 14), 11 27 51 (S 11 28 09), 15 39 34, 15 39 36 (S 15 40 13), 22 50 57, 22 53 18.
MARCH 11 01 25 49, 05 03 16 (S 05 04 00, 06 01 39 (S 06 01 51), 07 21 42, 07 59 13, (S 07 59 31), 15 53 11 (S 15 53 21), 17 17 57 (S 17 18 12).
MARCH 12 10 51 41 (S 10 51 54), 22 26 04.
MARCH 13 14 56 04 (S 14 57 34), 16 03 40 (S 16 04 11), 19 00 19.
MARCH 14 02 15 06 (S 02 15 41), 04 23 20, 05 18 39 (S 05 18 53), 06 55 07 (S 06 55 35), 09 41 47 (S 13 34 22), 15 18 49, 18 22 11 (S 18 22 41).
MARCH 15 02 59 49, 14 24 17, 14 17 05 (S 14 18 52), 21 13 36 (S 21 14 25), 22 42 41 (S 22 43 00).

1964

MARCH 16 09 55 31, 09 50 19 (S 09 51 12), 10 12 50 (S 10 13 13), 22 41 28, 23 44 08 (S 23 44 23).

MARCH 17 03 12 48, 03 14 49 (S 03 15 41), 18 47 41 (S 18 48 07), 17 15 29 (S 17 15 53), 17 46 23 (S 17 47 20), 22 58 16 (S 22 59 19), 23 55 30 (S 23 56 02).

MARCH 18 02 08 08 (S 02 08 40), 02 45 19 (S 02 45 40), 03 50 41, 10 09 32 (S 10 10 25), 10 46 52 (S 10 47 35), 18 28 36, 21 34 00.

MARCH 19 03 31 22, 15 09 20, 17 07 50, 18 06 13 (S 18 06 27), 22 30 18 (S 22 30 58).

MARCH 20 06 57 54 (S 06 59 45), 15 54 19 (S 15 54 56), 17 07 12, 19 45 25 (S 19 45 39),

MARCH 21 04 01 24, 04 02 52, 12 10 01.

MARCH 22 05 52 06, 07 07 07 (S 07 07 57), 08 40 17, 17 51 58 (S 17 52 21), 19 03 10.

MARCH 23 03 28 19, 03 38 19, 03 49 58, 10 00 56 (S 10 01 07), 21 21 07, 21 40 25 (S 21 40 33).

MARCH 24 00 18 27, (S 00 18 35), 01 17 17, 02 15 36 (S 02 15 48), 06 38 01, 13 22 09, 17 42 06, 22 49 09.

MARCH 25 10 12 35, 12 46 15, 22 19 40, 23 35 11.

MARCH 26 00 30 35, 05 26 42 (S 05 27 52), 12 35 18, 13 35 50, 16 15 50.

MARCH 27 09 47 01, 17 17 30.

MARCH 28 03 49 18, 06 57 04, 07 23 25, 11 49 52, 12 34 01, 15 00 39, 20 24 14, 20 42 10, 20 53 51.

MARCH 29 01 22 42, 06 11 35 (S 06 12 06), 18 39 55 (S 18 40 46).

MARCH 30 02 31 17, 06 30 45 (S 06 31 06), 10 58 25 (S 10 58 35), 11 58 43 (S 11 59 18), 15 12 35, 17 16 44.

MARCH 31 00 33 15, 09 13 29, 09 57 18, 12 16 05, 14 33 37, 15 23 44, 22 23 43.

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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° 04-64

APARTADO N° 3747, LIMA - PERU

APRIL - 1964

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

1964

APRIL 01 04 29 12, 06 01 36 (S 06 01 51), 18 29 46, 22 59 51.
APRIL 02 01 31 53, 01 57 48, 03 41 33, 11 00 04, 11 56 51, 16 16 35, 23 37 53.
APRIL 03 08 08 01, 09 04 46, 13 47 34 (S 13 48 20), 15 22 22.
APRIL 04 09 50 39, 14 19 28, 17 59 26.
APRIL 05 02 55 54, 07 51 52, 11 24 48, 22 24 23, 23 43 39.
APRIL 06 07 26 56, 13 14 11, 15 15 26, 22 53 39.
APRIL 07 06 03 36, 06 38 36, 10 16 32, 13 38 00, 17 53 43, 19 41 30, 23 16 33.
APRIL 08 06 37 31, 09 45 25 (S 09 46 04), 10 50 55 (S 10 51 08), 16 02 29.
APRIL 09 06 06 22, 07 22 50 (S 07 22 59), 07 33 00, 19 46 29, 19 49 23, 21 56 41, 21 57 16, 22 37 37.
APRIL 10 01 21 07, 06 09 51, 19 37 14.
APRIL 11 04 17 20, 06 18 31, 07 40 03, 10 03 22, 15 17 05, 21 07 30.
APRIL 12 01 37 39, 01 50 28, 03 48 14.
APRIL 13 09 25 12, 09 30 02.
APRIL 14 01 31 40, 02 19 42, 03 28 06, 07 25 01, 10 45 17, 16 51 40, 22 06 54 (S 22 07 47).
APRIL 15 07 24 39, 13 39 02.
APRIL 16 05 17 01, 19 36 49 (S 19 36 59).
APRIL 17 03 23 42, 06 18 57 (S 06 19 17), 07 41 41, 09 31 24, 17 38 18.
APRIL 18 00 21 27, 02 52 55.
APRIL 19 05 19 10, 09 23 51, 12 58 37, 13 19 14 (S 13 20 50), 14 21 16, 16 25 27, 18 25 14, 19 42 09 (S 19 42 31), 21 03 05.
APRIL 20 05 35 33, 06 12 60, 08 26 30, 10 54 02, 12 09 45, 16 20 50 (S 16 21 03), 22 13 48, 22 22 56.
APRIL 21 03 25 11, 05 14 38, 11 32 24, 12 59 28, 15 27 55, 21 23 15 (S 21 23 31), 22 42 13.
APRIL 22 04 10 36, 08 22 31, 09 19 18, 10 51 30 (S 10 51 52), 12 16 34, 12 42 11, 13 25 43 (S 13 26 07), 16 28 05 (S 16 28 15), 17 06 58, 19 40 10.

1964

APRIL 23 04 52 27, 08 05 05, 14 19 44.

APRIL 24 06 09 44, 06 15 12, 08 45 57 (S 08 46 18), 14 45 11, 14 52 48, 18 34
09, 22 36 27, 23 20 41.

APRIL 25 04 54 57, 11 47 57, 13 38 00.

APRIL 26 00 06 17, 18 05 23 (S 18 07 00).

APRIL 27 05 57 03 (S 05 57 20), 14 49 50, 21 22 20.

APRIL 28 02 47 38, 07 51 22, 08 11 46, 09 54 43 (S 09 54 56), 19 35 30, 20 20
22, 20 25 06.

APRIL 29 00 49 26, 04 10 05, 18 01 19.

APRIL 30 05 00 54, 08 16 07, 08 49 28, 14 55 45, 19 04 37 (S 19 04 57), 19 11
06, 19 26 12.

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Seismological Department



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

MINISTERIO DE FOMENTO

ÑAÑA PRELIMINARY BULLETIN N° 05 - 64

APARTADO N° 3747, LIMA - PERU

May - 1964

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

1964

- MAY 01 05 37 59, 05 38 40, 14 08 24, 17 16 15.
- MAY 02 01 11 33, 01 58 34, 02 56 04, 11 03 38, 16 30 04, 18 28 13, 19 09 20,
21 36 17, 22 06 50.
- MAY 03 06 54 20, 07 54 08, 08 08 24, 12 44 54, 18 14 51.
- MAY 04 03 04 16, 15 50 40, 19 26 20.
- MAY 05 03 28 43, 06 40 57, 15 00 29, 17 07 31, 18 53 27 (S 18 53 57).
- MAY 06 03 25 11, 04 05 09, 04 37 20, 06 04 50, 11 07 24, 15 11 59, 15 26 30,
16 57 28.
- MAY 07 01 03 15 (S 01 03 46), 08 17 25, 11 29 43, 19 20 53, 20 32 03, 23 43
23 (S 23 43 36).
- MAY 08 03 24 42, 06 13 03, 14 41 36, 17 35 21, 20 40 12, 21 47 34, 22 05 13,
23 46 18.
- MAY 09 09 11 22, 10 12 58, 11 31 58, 15 35 21 (S 15 35 30), 19 18 49, 19 25
13, 19 21 19, 20 08 26.
- MAY 10 02 33 30, 07 21 19, 18 08 27.
- MAY 11 03 17 28, 03 55 53, 04 09 33, 16 32 16.
- MAY 12 08 33 31 (S 08 34 29), 13 50 55, 16 16 04, 21 59 06, 22 37 44, 23 56
27.
- MAY 13 16 45 00, 23 34 48.
- MAY 14 02 49 38, 11 31 54 (S 11 33 08), 23 21 42.
- MAY 15 03 47 37 (S 03 48 07), 07 57 53, 09 20 24, 10 07 55, 11 53 58, 12 30
37, 14 11 12, 15 22 31.
- MAY 16 04 33 11, 09 52 25, 22 49 52.
- MAY 17 06 32 03, 07 54 09, 14 46 04, 15 41 55, 19 13 32, 19 36 33, 22 02 12.
- MAY 18 00 50 12, 04 15 55 (S 04 16 37), 06 25 05, 07 42 56, 09 38 49 (S 09
38 58), 15 53 40, 21 36 25.
- MAY 19 05 33 23, 07 26 18, 17 45 23, 23 06 21.

1964

MAY 20 00 11 56, 03 27 51 (S 03 29 58), 11 12 04, 13 28 54 (S 13 29 06), 14 33
29, 17 10 50, 21 08 48, 21 29 44.

MAY 21 00 41 42 (S 00 42 18), 07 48 23, 18 25 28, 19 57 38, 22 28 03.

MAY 22 09 09 26.

MAY 23 03 12 17, 07 52 09, 11 50 45, 17 45 14, 18 57 13, 21 33 20 (S 21 34 59).

MAY 24 06 36 47, 06 48 02 (S 06 48 15), 07 04 33, 10 25 03, 18 04 26, 18 28 14
(S 18 28 53).

MAY 25 01 12 10 (S 01 12 25), 08 09 18, 15 52 10, 16 51 47.

MAY 26 02 20 55, 03 24 11, 11 08 54, 13 46 54 (S 13 47 37), 15 52 21, 16 52 26
(S 16 52 35), 19 24 28 (S 19 24 48).

MAY 27 01 06 26, 06 40 41, 11 10 36.

MAY 28 09 58 44, 12 50 35 (S 12 51 00), 13 29 10, 17 06 43, 20 46 15, 23 48 10.

MAY 29 04 01 51, 05 10 14, 08 04 39, 09 14 18, 09 38 58, 10 04 25, 11 33 38,
11 58 32, 14 55 25, 15 34 35 (S 15 34 47), 15 42 47, 16 49 10, 19 58 46,
21 41 57.

MAY 30 01 49 55, 06 32 10, 07 43 35, 10 06 20, 14 33 18, 14 49 31, 17 40 15,
19 04 37, 19 28 43, 19 36 37, 21 14 29.

MAY 31 00 59 41, 02 32 22 (S 02 32 38), 06 36 58, 06 39 28, 07 47 33, 10 36 44,
12 38 22, 19 59 06 (S 19 59 52).

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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° 06 - 64

APARTADO N° 3747, LIMA - PERU •

JUNE - 1964

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

1964

JUN 01 06 53 05, 07 53 08, 09 23 36, 14 02 53, 17 36 14, 22 08 53.
JUN 02 03 52 53, 04 18 55.
JUN 03 07 06 17, 07 51 12, 09 38 14.
JUN 04 11 29 04, 11 46 42, 14 00 56.
JUN 05 06 43 46, 11 53 18, 17 09 04, 17 26 54, 20 19 26.
JUN 06 00 34 12, (S 00 35 11), 03 45 33, 06 55 55, 10 55 31, 13 42 48, 19 05 47,
19 15 09.
JUN 07 02 40 35, 03 58 48, 13 26 47, 13 42 40, 14 08 57, 20 14 52 (S 20 18 38).
JUN 08 00 39 24, 01 44 40, 02 15 46, 02 40 41, 03 00 20, 03 44 38, 05 00 45,
07 15 56, 08 01 08, 16 56 53, 18 11 38, 22 04 45.
JUN 09 02 34 28, 10 39 27, 11 57 01, 15 33 14 (S 15 34 33), 17 08 34, 18 19 02,
(S 18 22 32).
JUN 10 06 28 35, 07 59 50 (S 07 59 57), 09 36 48, 11 57 49, 12 22 54, 13 12 08,
(S 13 12 19), 13 51 39 (S 13 51 50), 22 36 26.
JUN 11 02 20 37, 10 11 57, 11 04 59, 15 35 41, 18 09 38, 21 37 48.
JUN 12 04 30 35, 11 19 04, 16 16 39, 16 38 09, 18 05 32, (S 18 05 45), 18 44 56,
19 41 10, 22 23 16 (S 22 23 38).
JUN 13 02 43 25, 05 21 41, 15 56 05, 21 10 09, 22 25 30, 23 29 41.
JUN 14 16 29 06.
JUN 15 00 06 31, 02 21 51, 07 05 27, 08 14 40, 16 53 20.
JUN 16 04 20 13, 04 38 43, 04 51 08, 08 16 23, (S 08 16 36), 11 17 21.
JUN 17 03 01 41, 04 37 23, 05 41 26, 11 14 47, (S 11 15 19), 11 56 24.
JUN 18 02 55 54, 08 32 58, 09 45 38, 10 47 41.
JUN 19 12 50 41.
JUN 20 01 51 28, (S 01 51 42), 18 09 10, 22 48 43.
JUN 21 00 21 51, (S 00 22 03), 05 49 00, 06 55 54, 07 47 53, 12 04 56, 13 16 39,
23 03 21.
JUN 22 03 16 51, 03 32 11, 14 05 36, 14 55 49, 16 41 53, 20 56 36, (S 20 57 50).

1964

JUN 23 00 32 11, 01 45 43, 02 07 01, 02 08 49, 03 25 56, (S 03 26 09), 09 56 35,
13 56 04, 22 13 20, (S 22 13 30), 22 27 53.

JUN 24 00 49 49, 02 17 51, 06 23 43, 18 21 13, 21 20 08, 21 44 17, (S 21 44 30).

JUN 25 11 21 26, 11 50 29, 19 29 21, 23 29 26, (S 23 29 42).

JUN 26 02 02 38, 04 35 38, 05 53 45, 06 54 50, 12 00 13, (S 12 00 35).

JUN 27 03 27 46, 15 34 10, 17 31 19, 19 05 01, 22 18 03.

JUN 28 04 45 57, 05 53 54, 06 19 45, 13 10 53, 17 36 29, 18 05 55.

JUN 29 06 05 47, (S 06 06 17), 07 34 47, 08 53 21, 12 00 59, 16 58 25.

JUN 30 03 58 42, 11 31 55, 13 37 11, 14 06 15, 16 37 11, 20 26 57.

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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 - 64
APARTADO N° 3747, LIMA - PERU
AUGUSTE - 1964

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

1964

AUGUST 01 10 10 26, (S 10 10 35), 10 52 31, (S 10 52 40), 13 37 47, 22 28 27.
AUGUST 02 07 13 29, 08 16 16, 10 41 50, 11 42 40.
AUGUST 03 01 54 45, 04 06 09, 11 42 20, 11 52 21, 12 32 07.
AUGUST 04 03 38 33, 12 31 53, 13 08 05, 15 50 15, 17 43 23, 21 04 55.
AUGUST 05 01 02 39, 03 18 04, 05 57 27, 04 44 33, 11 18 59, 11 29 14, 14 32 23,
20 57 20, 22 29 11.
AUGUST 06 01 27 17, 02 53 03, 03 35 44, 07 05 34, 11 57 10, 18 50 27.
AUGUST 07 00 34 46, 01 32 15, 14 42 57, 17 52 36, 19 15 25.
AUGUST 08 04 55 47, 15 50 57, 23 01 52, (S 23 02 06).
AUGUST 09 00 54 52, 12 50 39, 15 23 26, (S 15 23 49).
AUGUST 10 01 16 39, 07 36 37, (S 07 37 58, 09 43 41, 10 24 25, 17 04 11, 17
08 51, 21 10 14.
AUGUST 11 01 16 39, (S 01 16 47), 06 20 30, 09 26 05, 09 27 57, 13 26 39, 14
16 28, 17 32 19, 17 33 07, 17 58 33, (S 17 58 52).
AUGUST 12 07 06 40, 17 05 30.
AUGUST 13 00 49 35, 00 52 14, 03 59 42, 04 47 56, 10 18 21, 14 47 39, 16 34 04,
16 35 56, 18 18 05.
AUGUST 14 01 13 04, (S 01 13 21), 09 28 17, 16 19 37, 18 21 09, 18 30 06, 18
49 58, 19 28 30.
AUGUST 15 04 53 12, 13 35 31, 21 26 14.
AUGUST 16 01 21 19, 07 09 30, 08 25 15, 13 17 40.
AUGUST 17 01 00 17, (S 01 01 02, 02 01 19, 04 13 56, 08 11 32, 08 25 55, 14
04 19, 14 29 55, 15 17 02.
AUGUST 18 00 28 09, (S 00 29 07), 01 57 35, 03 20 14, 04 40 00, 04 48 35, 04
51 16, 14 58 32, 22 14 17.
AUGUST 19 02 28 17, 04 04 16, 14 01 57.
AUGUST 20 08 44 00, 18 57 13.
AUGUST 21 10 16 29, 11 07 45, 16 02 10.
AUGUST 22 08 45 10, 10 59 45.

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° 07-64

APARTADO N° 3747, LIMA - PERU

JULY - 1964

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

1964
 JULY 01 01 02 35, 02 58 36, 03 53 50, 08 46 19, 12 53 08, 19 35 35, 20 23 04,
 (S 20 24 45), 22 06 47, 22 50 19, (S 22 50 58), 23 46 29.
 JULY 02 06 37 24, 07 06 48, 09 10 21, (S 09 10 54), 11 19 31, (S 11 19 43),
 11 43 39, 14 49 37.
 JULY 03 00 53 31, 03 03 07, 04 37 59, 18 42 41, 18 49 54, 20 22 33, (S 20 22
 47).
 JULY 04 04 49 52, 05 29 32, 11 08 49, 12 15 12, 12 24 15.
 JULY 05 01 09 01, 01 11 03, 08 12 04, 08 21 47, (S 08 22 00), 09 11 40, 09 32
 22, 18 16 48, 19 16 50, 22 15 38, (S 22 16 08), 23 55 07.
 JULY 06 00 14 06, 00 52 53, 02 23 29, 07 29 22, 10 21 53, 10 33 03, 10 45 25,
 12 48 54, 14 09 21, 14 38 09, 15 04 37, (S 15 05 15), 16 25 56, 18 13
 36.
 JULY 07 00 49 30, 02 57 45, 08 56 23, 11 01 19, 20 14 16, 23 00 09.
 JULY 08 02 53 51, 06 36 27, 08 05 46, 10 08 27, 11 49 39, (S 11 50 08), 12 08
 06, 12 15 05.
 JULY 09 00 53 53, 01 36 02, 06 39 16, 08 34 55, 16 57 07, 17 00 23, 20 25 22.
 JULY 10 06 40 10, 09 36 30, 13 23 46, 13 31 35, 17 52 02, 18 26 36, 18 58 55,
 19 18 17, (S 19 19 27), 20 48 09, (S 20 49 17).
 JULY 11 08 17 51, 11 32 09, 13 49 31, 17 57 22, 18 39 05, (S 18 39 22).
 JULY 12 02 39 33, (S 02 39 53), 08 45 49, 16 51 55.
 JULY 13 08 18 17, 08 55 36, 10 40 22, 12 35 20, (S 12 35 34), 14 06 25.
 JULY 14 02 41 47, 04 44 44, 06 11 39, 08 12 21, 10 01 53, 12 24 43.
 JULY 15 03 49 38, (S 03 49 58).
 JULY 16 07 45 23, 11 48 36, (S 11 48 46), 11 59 36, 14 43 23, 23 05 52.
 JULY 17 00 13 33, 00 52 41, 07 11 21, (S 07 11 30), 07 21 58.
 JULY 18 11 15 19, 11 17 06, 12 15 30.
 JULY 19 07 47 45, 09 10 53, 13 21 16, 19 52 12, (S 19 52 25).
 JULY 20 00 59 12, 08 49 15, 14 29 07, 16 12 47, 17 43 20, 18 57 56, 19 22 33,
 22 12 08, 22 18 06, 22 45 50.
 JULY 21 01 17 35, 02 32 14, 04 01 56, 07 35 48, 14 54 51, 17 10 57.

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MINISTERIO DE FOMENTO

ÑAÑA PRELIMINARY BULLETIN N° 08 - 64

APARTADO N° 3747, LIMA - PERU

AUGUST - 1964

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

1964

AUGUST 01 10 10 26, (S 10 10 35), 10 52 31, (S 10 52 40), 13 37 47, 22 28 27.
AUGUST 02 07 13 29, 08 16 16, 10 41 50, 11 42 40.
AUGUST 03 01 54 45, 04 06 09, 11 42 20, 11 52 21, 12 32 07.
AUGUST 04 03 38 33, 12 31 53, 13 08 05, 15 50 15, 17 43 23, 21 04 55.
AUGUST 05 01 02 39, 03 18 04, 05 57 27, 04 44 33, 11 18 59, 11 29 14, 14 32 23,
20 57 20, 22 29 11.
AUGUST 06 01 27 17, 02 53 03, 03 35 44, 07 05 34, 11 57 10, 18 50 27.
AUGUST 07 00 34 46, 01 32 15, 14 42 57, 17 52 36, 19 15 25.
AUGUST 08 04 55 47, 15 50 57, 23 01 52, (S 23 02 06).
AUGUST 09 00 54 52, 12 50 39, 15 23 26, (S 15 23 49).
AUGUST 10 01 16 39, 07 36 37, (S 07 37 58, 09 43 41, 10 24 25, 17 04 11, 17
08 51, 21 10 14.
AUGUST 11 01 16 39, (S 01 16 47), 06 20 30, 09 26 05, 09 27 57, 13 26 39, 14
16 28, 17 32 19, 17 33 07, 17 58 33, (S 17 58 52).
AUGUST 12 07 06 40, 17 05 30.
AUGUST 13 00 49 35, 00 52 14, 03 59 42, 04 47 56, 10 18 21, 14 47 39, 16 34 04,
16 35 56, 18 18 05.
AUGUST 14 01 13 04, (S 01 13 21), 09 28 17, 16 19 37, 18 21 09, 18 30 06, 18
49 58, 19 28 30.
AUGUST 15 04 53 12, 13 35 31, 21 26 14.
AUGUST 16 01 21 19, 07 09 30, 08 25 15, 13 17 40.
AUGUST 17 01 00 17, (S 01 01 02, 02 01 19, 04 13 56, 08 11 32, 08 25 55, 14
04 19, 14 29 55, 15 17 02.
AUGUST 18 00 28 09, (S 00 29 07), 01 57 35, 03 20 14, 04 40 00, 04 48 35, 04
51 16, 14 58 32, 22 14 17.
AUGUST 19 02 28 17, 04 04 16, 14 01 57.
AUGUST 20 08 44 00, 18 57 13.
AUGUST 21 10 16 29, 11 07 45, 16 02 10.
AUGUST 22 08 45 10, 10 59 45.

1964

AUGUST. . 23 02 10 41, 04 26 07, 11 02 23, 13 29 14, 13 31 18, 20 57 02, 21 43 48.
AUGUST. . 24 08 04 52, 09 52 06, 10 39 49, 13 05 36.
AUGUST. . 25 06 09 10, 06 30 37, 07 27 40, 07 41 30.
AUGUST. . 26 15 04 46, 16 27 54, 21 38 22.
AUGUST. . 28 18 44 30, 20 34 21.
AUGUST. . 29 00 30 34, 06 08 15.
AUGUST. . 30 15 38 22, 20 18 23.
AUGUST. . 31 15 28 52, 22 03 47.

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MINISTERIO DE FOMENTO
ÑAÑA PRELIMINARY BULLETIN N° 09 - 64
APARTADO N° 3747, LIMA - PERU
SEPTEMBER - 1964

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

1964

SEPTEMBER 01 01 19 15, 08 14 19, 13 29 54, 13 44 15, 15 42 55, 23 32 36.
SEPTEMBER 02 13 15 54, 13 55 28, 18 16 49, 22 36 00.
SEPTEMBER 03 00 55 29, 03 03 44, (S 03 03 53), 05 09 30, 10 11 25, 14 08 39, 18
01 44, 22 51 05.
SEPTEMBER 04 01 15 11, 09 39 16, 10 53 56.
SEPTEMBER 05 02 12 49, 03 12 48, 12 46 28, 12 54 04, 15 07 33, 18 04 16.
SEPTEMBER 06 09 58 44, 11 40 42, 11 51 51, 12 52 17, 14 05 10, 16 16 27, 19 00
25.
SEPTEMBER 07 04 00 21, 13 16 07, (S 13 16 29).
SEPTEMBER 08 03 35 32, 04 18 41, 09 09 56, 13 39 11, 14 41 04, 14 46 36, 15 02
57, 22 01 51.
SEPTEMBER 09 07 46 58, 11 22 18.
SEPTEMBER 10 00 16 31, 04 33 52, 08 06 33, 12 10 10, 12 48 11, (S 12 48 19),
17 41 58, 21 38 31, 21 40 09.
SEPTEMBER 11 03 44 02, 04 27 24, 12 22 00, 14 00 16, 16 43 21.
SEPTEMBER 12 09 10 43, 13 02 25, 17 11 16, 17 13 15, 22 20 42.
SEPTEMBER 13 03 43 36, 04 03 54, 16 24 22.
SEPTEMBER 14 04 07 34, 10 05 54, 12 03 52, 13 39 50, 13 57 36, 15 53 27, 22 35
13.
SEPTEMBER 15 01 11 19, 03 48 33, 05 57 39, 09 07 50, 15 49 39, 15 55 01.
SEPTEMBER 16 07 41 59, 13 51 02, 15 24 15, (S 15 24 44).
SEPTEMBER 17 07 42 30, 15 13 10.
SEPTEMBER 18 00 37 36, 04 49 05, 09 29 56, 12 10 06.
SEPTEMBER 19 04 39 05, 06 40 44, 12 36 19, 13 47 18, 14 15 42, 17 28 03, 17 29
31.
SEPTEMBER 20 02 01 52, 12 22 37, 14 59 03, 15 00 41, 22 47 58.
SEPTEMBER 21 05 57 24, 06 19 35, 13 28 52, 14 25 28, 18 19 00.
SEPTEMBER 22 06 36 04, 09 08 11, 13 37 03, 19 30 30, 20 53 22.

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SEPTEMBER 23 02 01 08, 12 02 20.

SEPTEMBER 24 01 38 08, 20 35 02.

SEPTEMBER 25 10 48 49, 15 51 23, 16 27 17, 17 31 50, 18 25 39, (S 18 25 59),
19 22 42, (S 19 23 11).

SEPTEMBER 26 01 05 47, 21 21 47.

SEPTEMBER 27 01 19 02, 03 54 14, (S 03 54 21), 04 26 01, 06 38 33, 12 17 15,
(S 12 17 28, 18 24 08, 23 01 17.

SEPTEMBER 28 00 30 40, (S 00 30 52), 05 14 12, 17 15 33, 17 54 22, 22 26 48.

SEPTEMBER 29 03 02 52, 17 11 31, 18 47 17, 19 33 47, 23 50 41, (S 23 50 53).

SEPTEMBER 30 01 28 24, 16 44 19, 23 05 07.

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MINISTERIO DE FOMENTO

ÑAÑA PRELIMINARY BULLETIN N° 10 - 64

APARTADO N° 3747, LIMA - PERU

OCTOBER - 1964

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

1964

OCTOBER 01 12 48 49, 08 09 05, (S 08 09 23), 16 06 30, 16 09 56, 16 36 09, (S 16 37 38), 16 56 17, 20 43 44, (S 20 44 29, 23 01 30).

OCTOBER 02 19 50 43, 22 13 54, 22 15 25, 22 56 33.

OCTOBER 03 02 59 41, 04 05 31, 08 13 15, 12 50 08, (S 12 50 37), 19 39 04, 20 21 10.

OCTOBER 04 10 29 56, 11 41 19, 17 47 42, 19 44 59, 21 14 22, 21 29 41.

OCTOBER 05 02 25 31, 04 56 40, 06 05 21, 08 13 05, 11 42 42, 19 26 29, 23 36 35.

OCTOBER 06 00 36 07, (S 00 36 37), 00 46 19, 03 39 10, 07 24 25, 07 32 52, 18 19 38, (S 18 19 52), 19 24 29.

OCTOBER 07 04 25 20, 08 23 26, (S 08 23 40), 17 04 02, 18 38 35.

OCTOBER 08 00 45 17, 10 57 42, 13 58 21, 13 59 53, 15 29 11, (S 15 29 46).

OCTOBER 09 11 47 38, 12 32 13, 19 30.52, 19 30.52, 19 34 26, 23 27 06.

OCTOBER 10 10 46 02, (S 10 46 31), 14 39 18.

OCTOBER 11 07 25 10, (S 07 25 28), 10 52 54, 14 21 06, 14 22 51, 14 43 18, 15 59 01, 21 35 00.

OCTOBER 12 09 25 45, 09 54 34, 11 13 55, 11 45 37, (S 11 46 08, 13 42 26, 15 25 50, 15 55 04, 16 02 46, 19 29 10, 19 32 13, (S 19 32 42, 21 13 32, 22 02 40, 22 08 31).

OCTOBER 13 08 42 46, 10 57 51, 15 31 17, 23 54 38, (S 23 54 59).

OCTOBER 14 02 41 56, 19 28 46.

OCTOBER 15 20 40 03, 20 46 09, 21 09 06, 22 20 54.

OCTOBER 16 07 18 45, 08 20 32, 14 05 55, (S 14 06 14), 15 28 43, (S 15 28 53).

OCTOBER 17 03 05 46, (S 03 06 56, 07 46 37, 07 47 15, 15 20 40, 17 45 20, 19 30 03.

OCTOBER 18 01 38 31, 02 52 41, 08 25 16, 12 51 10.

OCTOBER 19 06 08 17, 09 17 50, 21 23 20.

OCTOBER 20 04 39 19, 07 27 07, 14 13 31, 15 21 16, 15 45 16, 21 54 30.

OCTOBER 21 08 35 42, 11 58 50, 15 42 32, 16 19 18, 19 01 21 (S 19 01 33, 23 29 11).

OCTOBER 22 02 58 57, (S 02 59 23, 19 44 56.



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OCTOBER 23 02 03 18, (S 02 09 06), 04 15 54, 04 41 04, 06 24 52, (S 06 25 27),
07 27 33, 09 58 40, 10 53 59, 13 32 56, 14 31 42, 16 51 18, 20 20
35, 21 25 31, 23 15 54, 23 28 23, 23 47 25.

OCTOBER 24 00 17 40, 00 59 59, (S 01 00 08), 04 50 17, (S 04 50 27), 12 13 34,
13 24 13, 13 25 07, 16 48 19, 18 03 03, 18 23 11.

OCTOBER 25 00 29 23, 03 47 25, 06 28 07, 12 14 53, 13 41 41, 16 38 26, 22 58
54.

OCTOBER 26 01 00 11, 02 23 34, 05 11 15, 05 29 27, 14 33 43, 15 11 52, 17 08
33, (S 17 08 41).

OCTOBER 27 02 53 20, 06 15 17, 11 40 30, 22 44 48.

OCTOBER 28 00 26 24, 03 08 12, 07 09 16, 09 24 51, 15 27 32, (S 15 27 53), 21
10 21.

OCTOBER 29 07 14 19, 07 42 03, 15 35 08, 16 41 17, 19 42 19, (S 19 42 32), 20
59 27, 23 55 21.

OCTOBER 30 08 44 51, 12 27 53, 14 27 30, (S 14 27 42, 16 52 05).

OCTOBER 31 20 40 20.

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MINISTERIO DE FOMENTO

ÑAÑA PRELIMINARY BULLETIN N° 11-64

APARTADO N° 3747, LIMA - PERU

NOVEMBER - 1964

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

1964

NOVEMBER 01 12 45 53, 20 22 29, 20 40 09, 23 56 23.
NOVEMBER 02 05 23 36, 06 52 53, (S 06 54 15), 10 49 33, 11 18 14, (S 11 18 23),
20 33 48, 23 38 31.
NOVEMBER 03 03 19 34, 03 50 06, 05 32 03, 06 31 47, 13 02 46, 13 06 38, 14 33
58, (S 14 34 28), 19 02 30.
NOVEMBER 04 02 13 52, 03 57 04, 15 29 42, 17 13 23, 18 37 04, 20 14 13.
NOVEMBER 05 01 05 08, 04 10 37, 05 56 20, 06 08 31, 08 20 52, 14 01 18, 20 54
36, 22 29 31.
NOVEMBER 06 03 56 56, 08 10 48, 14 31 43, 16 34 10, 18 14 18, 18 40 00, 19 10
53, 22 52 45, (S 22 52 55).
NOVEMBER 07 01 23 53, 14 08 44, 19 02 16.
NOVEMBER 08 04 03 21, 11 28 07, 17 42 28, 18 25 00, 21 44 34.
NOVEMBER 09 05 03 50, 06 43 51, 08 50 10, 10 21 51, 13 01 13.
NOVEMBER 10 06 22 27, 07 34 16, 13 16 41, 21 05 02.
NOVEMBER 11 01 30 14, (S 01 30 40), 04 33 15, 08 26 31, 09 20 58, 17 21 19,
18 49 33, (S 18 49 57), 19 09 22.
NOVEMBER 12 03 54 46, 04 33 39, 05 38 24, (S 05 38 34), 12 15 46, 15 12 13,
17 28 24.
NOVEMBER 13 04 29 17, 11 09 44, 11 14 42, 13 05 35, 15 56 26, 20 59 00.
NOVEMBER 14 00 02 51, 00 04 15 40, 04 22 16, 15 35 35.
NOVEMBER 15 04 20 52, 12 33 19, 19 51 47.
NOVEMBER 16 07 27 54, 10 10 22, 13 40 20.
NOVEMBER 17 06 12 22, (S 06 12 52), 08 05 21, (S 08 05 32), 08 34 38, 10 36 55,
(S 10 37 26), 21 28 34, 00 12 33.
NOVEMBER 18 04 04 34, (S 04 04 57), 05 06 27, 10 53 01, 12 38 09, 14 00 47, 14
NOVEMBER 19 54 04, 16 35 06.
00 03 23, 01 39 05, 12 26 33, 23 54 20.
NOVEMBER 20 10 32 18, 11 37 02, (S 11 37 13), 12 32 17, 14 12 35, 15 02 51.

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NOVEMBER 21 00 12 42, 01 16 53, 11 59 22, 13 26 52, 14 31 45, 17 26 06, 21 41
57.

NOVEMBER 22 05 27 30, 09 40 59, 09 45 03, 10 34 54, 21 37 35, 21 55 19.

NOVEMBER 23 00 12 36, 03 46 43, (S 03 47 16), 05 14 13, 06 14 56, (S 06
15 26), 08 34 00, 10 29 07, 11 51 43, 12 04 15, 12 27 45, 18 26
45, 19 55 01, 22 35 37.

NOVEMBER 24 06 45 38, 06 20 26, 08 47 10, 10 53 09, 11 01 22, 11 24 14, 13 00
55, 15 46 09.

NOVEMBER 25 05 42 58, 10 31 06, 18 48 39, (S 18 48 57), 20 32 54, 20 58 47,
(S 20 58 59), 23 55 29, 23 56 58.

NOVEMBER 26 02 25 27, (S 02 25 36), 04 44 52, 05 00 51, 06 24 43, 06 25 55,
15 33 54, (S 15 34 15), 18 35 44, 19 35 44.

NOVEMBER 27 03 54 03, 06 37 20, 19 38 28, 20 17 23, 23 50 35.

NOVEMBER 28 07 32 57, 16 20 01, 16 43 24, (S 16 44 54), 16 51 20, (S 16 52
49), 20 01 10.

NOVEMBER 29 01 52 27, 03 26 39, 03 28 30, 09 15 16, 17 04 21, 17 10 15, 17 11
38, 01 25 30.

NOVEMBER 30 12 47 44, 22 25 15, (S 22 25 25).

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Peru
Dec. 1964

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MINISTERIO DE FOMENTO

ÑAÑA PRELIMINARY BULLETIN N° 12-64

APARTADO N° 3747, LIMA - PERU

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

1964

DECEMBER 01 02 34 38, 03 20 00, 22 55 56.
DECEMBER 02 05 08 00, 05 54 33, 07 09 41, 18 26 13.
DECEMBER 03 02 46 25, 04 31 35, 23 20 30.
DECEMBER 04 09 24 15, 12 04 07, 13 40 47, 17 38 26, 23 34 32.
DECEMBER 05 04 47 21, 14 18 51, 16 19 28 (S 16 19 49), 18 04 03.
DECEMBER 06 03 05 33, 03 17 18, 03 26 07, 14 50 36, 21 47 53.
DECEMBER 07 06 04 07, 09 17 48, 10 10 01, 15 57 09, 17 05 46, 18 57 10, 20 44 03,
22 17 21.
DECEMBER 08 01 12 30, 02 07 06, 03 43 23, 04 09 52 (S 04 09 57), 09 17 00, 09 26-
16, 13 19 42, 21 02 29.
DECEMBER 09 04 20 09, 10 40 37, 13 16 33, 13 39 38, 16 46 47, 19 12 40, 19 14 44.
DECEMBER 10 14 37 14, 15 17 50.
DECEMBER 11 05 31 13, 06 10 40, 07 06 17, 09 23 06, 16 23 31, 23 02 39, 23 37 11.
DECEMBER 12 04 02 25, 05 47 02, 08 54 34, 22 39 54.
DECEMBER 13 02 30 09, 07 05 54, 13 31 49.
DECEMBER 14 01 57 24, 02 54 06, 07 12 21, 09 23 17, 11 37 43, 15 53 44, 16 45 10,
17 54 39 (S 17 54 46), 18 55 52 (S 18 56 01).
DECEMBER 15 02 03 19, 02 39 16, 03 31 40, 14 48 22, 09 40 47, 10 06 22, 11 27 -
56, 12 19 28, 16 21 22, 16 35 33, 18 32 56, 18 41 05, 19 10 53.
DECEMBER 16 02 09 44, 04 15 03, 10 37 03, 11 21 09, 11 29 45, 16 51 28, 20 02 41,
20 40 43, 22 09 55.
DECEMBER 17 04 47 38, 16 51 08, 22 47 09.
DECEMBER 18 01 35 36 (S 01 35 46), 15 24 05, 19 34 27.
DECEMBER 19 05 22 51, 06 54 39, 08 40 13, 10 42 11, 11 19 30, 12 58 55, 14 04 59,
16 51 42, 22 57 34 (S 22 57 45).
DECEMBER 20 04 59 29, 08 49 39, 15 48 20, 21 26 47, (S 21 27 03), 22 45 52, 22 -
56 17.
DECEMBER 21 07 35 11 (S 07 35 42), 19 31 29.

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DECEMBER 22 01 26 30 (S 01 27 52), 02 25 11 (S 02 25 29), 06 08 10, 08 07 23,
14 21 39, 21 04 30.

DECEMBER 23 00 57 23, 03 10 31, 05 30 54, 05 56 46, 07 55 36, 11 14 25, 13 32
35.

DECEMBER 24 08 43 26, 18 07 17, 21 57 28.

DECEMBER 25 00 56 08, 05 56 25, 07 40 15, 08 50 58, 09 54 16, 10 49 55, 12 43-
06, 13 14 47, 13 54 00, 18 00 14, 18 55 07, 21 21 11.

DECEMBER 26 05 31 45, 08 23 31, 13 44 25, 19 48 55, 20 43 38, 20 48 14, 21 56-
56.

DECEMBER 27 08 31 27, 09 03 58, 18 03 21.

DECEMBER 28 06 18 19, 07 06 44, 08 10 45, 13 37 14.

DECEMBER 29 08 56 38, 11 39 50, 13 41 23, 16 54 14 (S 16 54 23), 19 33 54, 20-
02 01, 20 43 25, 21 37 53, 22 09 13.

DECEMBER 30 03 03 57, 15 46 23, 17 54 03.

DECEMBER 31 01 09 32 (S 01 04 44), 01 16 44 (S 01 16 54), 06 56 12, 12 55 49,
13 08 03.

Seismological Department