

# Monthly Preliminary Geomagnetic Bulletin - FEBRUARY 2021

## Coimbra Magnetic Observatory (COI, IAGA code)

$\phi = 40.222^\circ$ ;  $\lambda = 351.578^\circ$

Observatório Geofísico e Astronómico da Universidade de Coimbra (OGAUC)

### Absolute monthly means

| H (nT) | D (°)  | Z (nT) | X (nT) | Y (nT) | I (°)  | F (nT) |
|--------|--------|--------|--------|--------|--------|--------|
| 25824  | -1,708 | 36301  | 25812  | -770   | 54,573 | 44549  |

### Monthly daily amplitudes\*

|      | H (nT) | D (°) | Z (nT) | X (nT) | Y (nT) | I (°) | F (nT) |
|------|--------|-------|--------|--------|--------|-------|--------|
| mean | 33     | 4,1   | 23     | 33     | 31     | 2,7   | 21     |
| min  | 12     | 2,0   | 11     | 12     | 16     | 1,2   | 9      |
| max  | 65     | 6,3   | 42     | 64     | 48     | 4,8   | 35     |

### Monthly maximum amplitudes\*

| H (nT) | D (°) | Z (nT) | X (nT) | Y (nT) | I (°) | F (nT) |
|--------|-------|--------|--------|--------|-------|--------|
| 82     | 8,2   | 49     | 82     | 62     | 6,7   | 43     |

(\*) - Based on hourly values

## Geomagnetic Activity - K indices

### K indices

### ak indices (nT)

| Day | Tri-hourly values |   |   |   |    |    |    | Tri-hourly values |    |    |    |    |    |    | Ak |    |      |
|-----|-------------------|---|---|---|----|----|----|-------------------|----|----|----|----|----|----|----|----|------|
|     | 0                 | 3 | 6 | 9 | 12 | 15 | 18 | 21                | 0  | 3  | 6  | 9  | 12 | 15 |    | 18 | 21   |
| 1   | 2                 | 2 | 0 | 1 | 2  | 3  | 2  | 3                 | 10 | 10 | 0  | 4  | 10 | 21 | 10 | 21 | 10,7 |
| 2   | 4                 | 3 | 3 | 2 | 4  | 3  | 2  | 2                 | 38 | 21 | 21 | 10 | 38 | 21 | 10 | 10 | 21,0 |
| 3   | 3                 | 2 | 2 | 2 | 1  | 3  | 4  | 3                 | 21 | 10 | 10 | 10 | 4  | 21 | 38 | 21 | 16,8 |
| 4   | 2                 | 2 | 2 | 2 | 2  | 1  | 1  | 2                 | 10 | 10 | 10 | 10 | 10 | 4  | 4  | 10 | 8,4  |
| 5   | 3                 | 2 | 0 | 2 | 1  | 1  | 1  | 2                 | 21 | 10 | 0  | 10 | 4  | 4  | 4  | 10 | 7,9  |
| 6   | 1                 | 0 | 0 | 1 | 2  | 3  | 4  | 2                 | 4  | 0  | 0  | 4  | 10 | 21 | 38 | 10 | 10,9 |
| 7   | 4                 | 4 | 3 | 3 | 3  | 2  | 2  | 1                 | 38 | 38 | 21 | 21 | 21 | 10 | 10 | 4  | 20,3 |
| 8   | 1                 | 1 | 1 | 1 | 1  | 2  | 3  | 3                 | 4  | 4  | 4  | 4  | 4  | 10 | 21 | 21 | 9,1  |
| 9   | 1                 | 1 | 1 | 2 | 1  | 2  | 0  | 0                 | 4  | 4  | 4  | 10 | 4  | 10 | 0  | 0  | 4,6  |
| 10  | 1                 | 0 | 1 | 1 | 2  | 2  | 2  | 0                 | 4  | 0  | 4  | 4  | 10 | 10 | 10 | 0  | 5,3  |
| 11  | 0                 | 0 | 1 | 1 | 1  | 2  | 1  | 0                 | 0  | 0  | 4  | 4  | 4  | 10 | 4  | 0  | 3,3  |
| 12  | 0                 | 0 | 0 | 1 | 2  | 2  | 2  | 3                 | 0  | 0  | 0  | 4  | 10 | 10 | 10 | 21 | 6,8  |
| 13  | 2                 | 3 | 2 | 3 | 3  | 2  | 1  | 2                 | 10 | 21 | 10 | 21 | 21 | 10 | 4  | 10 | 13,3 |
| 14  | 1                 | 1 | 2 | 1 | 1  | 1  | 0  | 0                 | 4  | 4  | 10 | 4  | 4  | 4  | 0  | 0  | 3,9  |
| 15  | 1                 | 0 | 0 | 1 | 2  | 1  | 3  | 3                 | 4  | 0  | 0  | 4  | 10 | 4  | 21 | 21 | 8,1  |
| 16  | 1                 | 3 | 3 | 3 | 2  | 3  | 2  | 2                 | 4  | 21 | 21 | 21 | 10 | 21 | 10 | 10 | 14,7 |
| 17  | 2                 | 1 | 1 | 1 | 2  | 2  | 3  | 3                 | 10 | 4  | 4  | 4  | 10 | 10 | 21 | 21 | 10,5 |
| 18  | 2                 | 2 | 1 | 2 | 1  | 1  | 1  | 1                 | 10 | 10 | 4  | 10 | 4  | 4  | 4  | 4  | 6,3  |
| 19  | 2                 | 1 | 2 | 2 | 4  | 3  | 4  | 4                 | 10 | 4  | 10 | 10 | 38 | 21 | 38 | 38 | 21,0 |
| 20  | 3                 | 2 | 3 | 3 | 3  | 4  | 4  | 4                 | 21 | 10 | 21 | 21 | 21 | 38 | 38 | 38 | 25,9 |
| 21  | 4                 | 2 | 3 | 4 | 4  | 2  | 2  | 4                 | 38 | 10 | 21 | 38 | 38 | 10 | 10 | 38 | 25,2 |
| 22  | 4                 | 3 | 2 | 2 | 2  | 2  | 4  | 4                 | 38 | 21 | 10 | 10 | 10 | 10 | 38 | 38 | 21,7 |
| 23  | 4                 | 2 | 2 | 2 | 3  | 3  | 3  | 2                 | 38 | 10 | 10 | 10 | 21 | 21 | 21 | 10 | 17,5 |
| 24  | 3                 | 3 | 4 | 3 | 2  | 4  | 4  | 4                 | 21 | 21 | 38 | 21 | 10 | 38 | 38 | 38 | 28,0 |
| 25  | 3                 | 3 | 2 | 2 | 1  | 3  | 3  | 3                 | 21 | 21 | 10 | 10 | 4  | 21 | 21 | 21 | 16,1 |
| 26  | 3                 | 2 | 1 | 2 | 2  | 3  | 3  | 3                 | 21 | 10 | 4  | 10 | 10 | 21 | 21 | 21 | 14,7 |
| 27  | 1                 | 1 | 1 | 1 | 1  | 2  | 0  | 1                 | 4  | 4  | 4  | 4  | 4  | 10 | 0  | 4  | 4,4  |
| 28  | 0                 | 2 | 1 | 1 | 2  | 2  | 3  | 3                 | 0  | 10 | 4  | 4  | 10 | 10 | 21 | 21 | 10,0 |

Monthly mean of the daily equivalent amplitude Ak:

13,1

| K values:  | 0    | 1     | 2     | 3     | 4     | 5    | 6    | 7    | 8    | 9    |
|------------|------|-------|-------|-------|-------|------|------|------|------|------|
| Freq. (N): | 20   | 56    | 73    | 51    | 24    | 0    | 0    | 0    | 0    | 0    |
| Freq. (%): | 8,93 | 25,00 | 32,59 | 22,77 | 10,71 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |

| Classification of days | Quiet |    |    |    |    | Disturbed |    |     |    |     |
|------------------------|-------|----|----|----|----|-----------|----|-----|----|-----|
|                        | Q1    | Q2 | Q3 | Q4 | Q5 | D1        | D2 | D3  | D4 | D5  |
| Coimbra (local K):     | 11    | 14 | 27 | 9  | 10 | 24        | 20 | 21  | 22 | 2   |
| International (Kp):    | 11    | 10 | 27 | 9  | 14 | 20        | 21 | 24* | 7* | 22* |

## Principal Magnetic Storms

| Storminess period |      |     |     |      | Commencement |           |       | Maximum activity |     |   | Range  |        |       |        |
|-------------------|------|-----|-----|------|--------------|-----------|-------|------------------|-----|---|--------|--------|-------|--------|
| Begin             |      |     | End |      | Type         | Amplitude |       | Day              | 3hp | K | H (nT) |        | D (°) | Z (nT) |
| Day               | hour | min | day | hour |              | H (nT)    | D (°) |                  |     |   | Z (nT) | H (nT) |       |        |
| none              |      |     |     |      |              |           |       |                  |     |   |        |        |       |        |

SSC: storm sudden commencement;

3hp: daily 3-hour period of maximum activity; K: maximum local index

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