



Observatório Geofísico e Astronómico
UNIVERSIDADE DE COIMBRA

Coimbra local K indices - 2014 (COI: IAGA code)

Geographic coordinates: Latitude = 40.222 N; Longitude = 351.578 E

Geomagnetic coordinates: Latitude = 43.64 N; Longitude = 72.29 E

| | January | February | March | April | May | June | July | August | September | October | November | December |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 1 | D 1 1 2 3 4 4 3 3 | 0 0 1 1 1 2 2 3 | 2 0 1 2 2 2 2 3 | 0 0 0 0 2 3 2 2 | 2 2 1 1 1 1 1 1 | Q 1 0 2 2 1 1 0 1 | Q 1 2 1 2 1 1 1 0 | 1 2 1 2 2 2 3 3 | 3 2 2 3 3 1 2 3 | 4 2 2 2 2 2 3 3 | 1 1 2 2 3 2 1 1 | 2 3 2 2 2 2 3 4 |
| 2 | D 3 3 2 2 3 3 4 3 | Q 1 2 2 1 1 2 1 0 | 3 1 1 1 2 2 1 0 | Q 0 0 1 2 3 3 2 1 | 1 2 1 1 1 2 1 1 | 0 1 0 1 2 1 2 3 | 0 1 2 2 1 3 1 1 | 2 1 2 2 3 3 2 1 | 2 2 2 2 3 2 3 3 | 2 2 2 2 2 3 2 3 | 2 1 1 2 3 3 3 1 | 4 3 2 2 2 2 3 1 |
| 3 | D 2 1 2 3 3 3 3 1 | 2 2 1 2 2 2 1 2 | 3 2 1 1 2 2 2 2 | 1 1 1 2 0 3 2 1 | 0 0 0 2 1 3 3 3 | 3 2 1 1 2 2 2 1 | 3 2 2 2 1 2 2 1 | 1 3 2 2 1 2 3 3 | 3 3 3 2 2 2 2 2 | Q 3 1 2 2 1 2 1 1 | Q 2 2 1 1 2 1 1 2 | 2 2 1 2 2 2 3 2 |
| 4 | 1 1 1 2 2 2 2 1 | 2 1 1 1 2 2 1 1 | 2 1 1 2 3 2 2 3 | 1 1 2 3 3 2 1 | 3 3 3 2 3 2 2 1 | 2 2 2 1 2 2 1 2 | 1 1 1 1 2 1 1 1 | 2 3 2 2 2 3 3 4 | 3 2 2 2 2 2 1 1 | Q 1 2 2 1 2 2 1 2 | D 1 1 2 3 3 5 5 5 | 3 2 1 1 2 3 2 3 |
| 5 | 1 1 1 2 2 2 0 0 | 1 1 1 1 2 2 2 2 | 1 1 1 1 3 3 2 3 | 1 0 2 3 3 3 3 3 | 2 3 2 2 2 3 2 2 | 2 1 2 2 2 2 2 3 | 0 0 0 1 1 2 2 2 | 2 2 3 2 2 2 3 2 | 1 1 2 2 2 2 2 3 | Q 2 2 2 2 3 1 1 | D 3 3 3 3 3 2 2 3 | 2 3 2 3 3 2 1 2 |
| 6 | 0 1 1 1 2 1 1 1 | 2 3 2 2 2 2 1 1 | 1 0 1 1 2 2 3 1 | Q 2 0 1 0 1 2 1 1 | Q 1 1 1 1 1 1 1 0 | 2 2 2 1 2 2 2 2 | 1 1 1 2 2 2 2 2 | 2 3 2 1 2 2 1 1 | 1 2 3 2 2 3 3 3 | 2 2 1 2 2 2 1 3 | 1 2 2 2 3 2 1 4 | 2 2 2 2 2 3 4 3 |
| 7 | 1 1 1 2 2 3 2 3 | 0 0 2 1 1 2 3 5 | Q 1 1 0 1 2 2 2 1 | 3 2 2 2 3 4 2 2 | 0 0 1 2 1 1 1 2 | D 2 1 2 1 3 4 4 4 | 2 1 1 2 3 3 2 1 | 1 1 2 2 2 2 2 2 | 3 3 2 2 1 2 2 1 | 2 3 1 2 1 1 1 2 | 3 2 1 3 2 2 3 3 | D 4 2 2 3 5 4 4 3 |
| 8 | 3 3 1 2 2 1 1 2 | D 5 4 3 2 2 3 4 5 | Q 2 0 1 1 2 2 1 1 | 2 1 1 2 2 2 1 0 | D 2 4 4 4 3 3 3 4 | D 3 4 5 5 4 4 4 2 | 2 1 1 1 2 2 2 2 | 3 3 2 2 2 2 2 0 | Q 0 0 2 2 1 2 1 2 | 1 2 2 3 2 3 2 3 | 2 1 2 2 3 2 1 4 | 3 3 2 2 3 4 3 3 |
| 9 | 3 2 2 2 2 1 3 2 | 4 3 2 1 3 3 5 4 | Q 1 0 1 0 1 1 2 1 | 0 1 1 2 2 2 1 1 | 2 1 3 2 1 1 1 1 | 0 1 2 2 2 2 3 1 | D 1 1 1 2 2 3 3 2 | Q 0 1 1 1 1 1 1 0 | 2 1 1 2 2 2 2 3 | 3 3 4 3 2 2 2 2 | 2 2 2 1 2 3 3 3 | 3 2 2 2 2 2 4 4 |
| 10 | 2 2 1 2 2 2 2 1 | 2 2 2 2 2 2 4 4 | 1 0 1 2 2 2 1 1 | Q 0 0 1 0 1 2 1 1 | 2 3 2 2 1 1 3 3 | 2 2 2 3 4 3 2 2 | D 3 2 1 1 2 2 2 2 | 1 1 1 2 3 2 4 2 | 3 0 1 2 2 3 3 4 | 3 3 2 1 1 1 1 2 | D 4 3 3 4 3 4 4 2 | 4 2 2 2 1 1 2 1 |
| 11 | 0 0 1 1 1 1 3 2 | 2 2 2 2 2 1 2 3 | 0 0 1 1 2 2 2 1 | 1 2 2 2 2 2 2 4 | D 4 3 2 2 2 1 2 3 | 2 1 2 2 2 2 2 1 | 2 1 1 1 2 2 2 1 | 2 2 2 1 2 3 2 3 | 3 3 3 2 2 2 2 4 | 1 2 2 2 3 2 1 1 | 2 2 1 2 2 1 2 4 | Q 1 1 1 1 2 2 2 2 |
| 12 | 2 1 1 1 1 2 3 3 | 2 3 1 2 2 2 1 1 | 1 1 1 1 2 2 2 3 | D 5 3 3 2 2 2 3 2 | 2 2 2 1 2 2 2 1 | Q 1 1 1 1 2 2 2 1 | 2 2 2 1 2 2 2 1 | 3 1 1 2 2 3 4 4 | D 5 4 2 2 3 4 5 6 | Q 0 0 2 3 2 2 2 2 | 4 2 2 1 1 1 1 3 | D 3 2 2 3 4 3 4 3 |
| 13 | 2 3 1 2 2 2 0 1 | Q 0 0 1 1 1 1 1 0 | D 4 3 3 2 2 2 2 1 | D 3 2 2 2 2 3 3 | 1 1 1 1 1 1 1 2 | 1 1 1 1 2 2 1 2 | 1 1 1 1 2 2 2 2 | 2 2 2 2 2 2 2 1 | 4 2 4 2 3 2 3 2 | 1 1 2 1 2 2 2 3 | Q 1 2 1 2 2 1 1 1 | 2 2 1 1 2 2 3 3 |
| 14 | D 3 3 2 2 3 3 2 2 | Q 0 0 1 2 2 1 1 0 | 1 1 2 1 3 3 1 1 | 2 2 3 2 1 2 2 2 | 1 1 1 1 1 2 1 1 | 3 2 2 1 2 2 3 1 | D 1 1 1 2 3 4 3 2 | 1 1 1 1 2 2 2 2 | Q 1 0 1 1 1 2 1 0 | D 1 1 2 2 3 5 5 5 | 3 3 3 2 2 3 3 4 | 2 2 1 2 2 3 3 2 |
| 15 | 1 1 1 1 2 1 1 0 | 1 0 1 1 4 3 3 4 | 3 1 1 1 1 2 2 1 | 1 2 0 0 0 0 2 1 | 1 1 1 1 0 2 2 1 | Q 1 0 1 1 2 2 2 1 | D 2 2 2 2 2 2 2 2 | 1 1 1 2 2 2 1 2 | Q 0 0 1 1 1 1 1 1 | 4 2 2 2 2 2 1 2 | D 3 2 2 2 3 2 2 5 | 1 2 3 3 3 3 3 3 |
| 16 | Q 0 1 1 1 1 1 1 0 | D 5 2 2 2 3 3 4 4 | Q 0 0 1 0 0 1 1 0 | 0 0 2 3 1 2 2 2 | 1 1 2 1 2 1 2 1 | 1 2 2 2 2 2 2 1 | 1 0 1 1 1 2 2 1 | Q 1 0 0 1 1 2 1 1 | 1 2 2 2 1 2 2 3 | 3 1 2 3 3 2 1 4 | D 3 3 3 3 4 4 3 3 | Q 1 2 2 2 2 2 2 2 |
| 17 | 0 1 1 1 1 2 1 2 | 1 0 0 1 1 1 2 3 | Q 0 0 1 1 1 2 2 2 | 3 2 2 3 4 2 1 | Q 2 1 1 2 1 2 2 0 | 2 2 2 2 2 3 3 | 1 1 1 1 1 2 2 1 | 2 1 1 2 3 2 1 2 | Q 2 1 1 1 3 2 3 | 1 2 2 2 2 2 3 | 2 1 2 2 3 3 4 2 | Q 3 2 1 1 2 2 2 1 |
| 18 | Q 1 0 1 1 1 2 1 1 | 2 0 2 1 2 3 3 2 | 1 1 2 1 3 3 2 1 | 2 1 1 2 3 3 3 3 | 1 1 1 1 2 2 2 1 | D 3 2 2 2 3 4 4 | Q 1 1 1 1 2 2 1 0 | 1 1 2 1 1 2 2 2 | D 2 1 1 2 2 2 4 4 | D 3 3 3 3 4 4 3 3 | 3 2 2 2 3 3 1 2 | Q 0 1 1 1 2 2 2 2 |
| 19 | Q 0 0 1 1 2 1 0 0 | D 4 5 5 4 5 3 3 3 | 2 1 1 2 2 2 1 1 | 4 3 3 3 3 3 3 1 | 1 2 1 1 1 2 2 1 | D 3 3 3 2 2 2 2 2 | Q 0 1 0 1 1 1 1 0 | D 1 1 2 3 2 3 4 5 | D 3 3 3 3 4 4 2 | 3 3 2 3 1 2 3 2 | 3 1 1 2 3 2 3 1 | 3 1 2 1 2 3 3 2 |
| 20 | Q 0 0 1 1 1 1 1 0 | D 2 5 5 5 5 4 3 3 | 1 2 1 2 2 2 2 2 | D 3 2 2 4 4 4 4 3 | 1 1 2 1 1 2 1 0 | D 2 1 2 2 3 3 2 3 | Q 1 0 1 1 2 1 1 1 | 3 1 2 2 3 2 3 2 | Q 2 2 1 1 3 2 1 1 | D 2 3 3 3 5 5 4 | 3 2 2 2 1 3 3 3 | 3 2 2 2 2 2 1 3 |
| 21 | 3 1 1 3 2 2 2 2 | 3 2 2 2 2 2 3 | D 2 2 2 2 2 3 3 | D 4 3 3 3 2 4 2 2 | Q 1 1 1 1 1 1 1 2 | 1 2 2 2 2 2 0 1 | 1 1 1 1 2 2 2 2 | 3 2 2 3 2 2 3 2 | 2 2 1 1 2 2 2 1 | D 3 2 3 3 3 4 3 | 3 3 2 2 2 2 3 3 | 2 2 2 2 3 2 4 4 |
| 22 | D 2 2 2 3 2 2 1 3 | 4 3 2 2 2 3 2 2 | 2 0 1 2 3 2 2 1 | Q 1 2 1 2 1 2 1 1 | 2 1 1 2 2 3 2 3 | Q 1 1 1 1 1 1 2 2 | 2 1 1 1 2 2 1 2 | 1 2 1 1 1 2 1 1 | 1 1 2 2 3 2 3 2 | D 3 3 2 3 3 4 2 1 | 2 2 1 2 2 2 3 4 | D 4 4 2 2 2 3 1 2 |
| 23 | 2 1 2 2 1 1 2 2 | D 2 2 3 3 4 5 4 4 | 1 1 2 2 2 2 2 2 | 1 1 2 2 1 2 2 2 | D 3 2 3 1 2 3 4 5 | 1 1 1 1 1 1 1 4 | 1 1 1 0 1 2 3 3 | 1 2 2 2 1 2 2 1 | 3 2 2 2 3 3 3 3 | 1 2 2 2 2 2 4 2 | 2 1 2 2 2 2 3 1 | 1 0 1 4 2 3 4 4 |
| 24 | 3 2 1 1 2 2 0 0 | 1 1 1 2 2 2 2 0 | 2 1 1 1 2 3 1 0 | 4 1 2 3 2 3 3 3 | 2 1 2 1 3 2 2 1 | 3 3 2 1 1 2 2 1 | 1 1 2 2 1 1 2 1 | Q 1 0 1 1 2 1 0 0 | D 3 3 2 4 4 3 3 4 | 3 1 1 2 2 3 2 2 | 2 1 1 1 2 2 3 1 | 3 2 1 2 4 3 4 4 |
| 25 | 2 1 1 1 1 2 2 3 | Q 0 0 1 1 2 1 1 3 | D 1 0 1 2 3 3 3 3 | 3 2 1 2 2 3 2 2 | 2 2 1 1 1 2 2 1 | 1 1 2 2 1 3 2 3 | 3 2 2 1 2 2 2 1 | Q 0 0 0 2 1 2 2 1 | 4 1 2 2 2 2 3 3 | 3 2 2 2 2 3 2 2 | 1 1 1 2 2 2 2 2 | 3 2 1 1 1 3 3 4 3 |
| 26 | 3 2 1 2 1 3 2 2 | Q 2 0 1 1 1 1 1 2 | D 3 - - - - - | 1 2 1 1 1 2 1 2 | Q 1 1 1 1 2 1 0 | 0 0 1 2 2 1 1 0 | 1 2 2 2 3 3 1 | Q 0 0 1 2 1 2 2 2 | D 3 3 2 2 3 2 3 | 3 2 3 3 3 3 2 1 | Q 1 1 2 1 2 0 0 1 | D 3 3 2 2 3 4 3 |
| 27 | 0 1 1 1 1 2 1 2 | 0 1 0 2 3 4 5 4 | - - - - - | Q 1 0 1 1 2 2 2 2 | 0 1 1 1 2 1 2 1 | Q 1 0 1 1 2 1 2 1 | 2 1 2 1 1 2 2 1 | D 1 2 3 3 3 4 3 5 | D 4 3 3 2 2 2 2 1 | 3 2 1 2 3 3 3 4 | 1 2 1 1 2 2 3 3 | Q 4 2 2 2 2 1 0 1 |
| 28 | 0 0 1 2 1 2 2 2 | 3 2 3 2 2 3 2 1 | - - - - - | 1 2 2 1 1 2 2 2 | 2 2 1 2 1 1 1 1 | 1 2 1 2 2 3 1 | D 3 4 4 3 3 3 3 3 | 1 2 2 2 3 3 1 | 3 2 2 3 3 3 1 | Q 0 0 1 1 3 2 1 1 | 2 1 2 2 2 2 5 3 | 2 1 2 2 2 2 5 3 |
| 29 | 2 1 2 1 2 2 2 2 | - - - - - | D - - - - - | 1 0 1 1 2 2 2 4 | 1 1 1 2 2 2 2 2 | 3 2 2 2 1 2 2 3 | Q 1 2 1 2 1 2 2 1 | D 3 3 3 4 3 2 3 4 | 2 1 2 2 3 2 4 2 | 3 2 2 2 2 2 2 0 | Q 1 1 2 2 2 1 1 1 | D 1 2 2 3 3 5 3 5 |
| 30 | 2 2 1 1 1 2 1 0 | - - - - - | D - - - - - | 2 3 3 3 3 3 4 1 | D 0 2 2 2 3 3 4 2 | 3 2 1 1 2 2 2 1 | 3 1 1 1 2 2 1 0 | 3 3 2 3 4 3 3 2 | 2 2 2 3 2 2 3 3 | Q 0 0 1 1 2 2 1 2 | 1 2 2 2 2 3 3 3 | 3 3 2 2 4 3 3 3 |
| 31 | Q 1 0 1 1 1 1 1 0 | - - - - - | D - - - - - | Q 2 2 2 1 1 2 2 1 | 2 2 2 1 1 2 2 1 | 1 1 2 2 1 2 2 2 | D 1 2 2 1 2 2 2 2 | 1 2 2 3 3 3 4 4 | 1 1 1 2 2 1 3 2 | 1 1 1 2 2 1 3 2 | 1 1 1 2 2 1 3 2 | 1 2 1 2 3 3 2 1 |

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|--|---------------------------------|--------------------------------------|--|
| K ≤ 3 (94.084%) Quiet to Unsettled | K = 4 (4.620%) Active | K = 5 (1.260%) Minor storm | K ≥ 6 (0.035%) Moderate to Extreme storm |
|--|---------------------------------|--------------------------------------|--|

Missing Data International Classification of Days (based on Kp index): Q = quiet; D = disturbed

The k index (introduced by Julius Bartels in 1938) aims to quantify the geomagnetic disturbances due to solar particle radiation. It consists of an integer in the range 0–9, which measures the maximum fluctuations of horizontal components of earth's magnetic field observed on a magnetometer during a three-hour interval (relative to an assumed quiet-day curve).