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ap index

a mean,3-hourly "equivalent amplitude" of geomagnetic activity based on K index data.

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Ap index

The planetary index for measuring the strength of a disturbance in the earth's magnetic field, defined over a period of one day from a set of standard geomagnetic observatories around the world.It is determined from the eight daily ap indexes.

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Dst index

A geomagnetic index describing variations in the equatorial ring current.

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Coordinated Universal Time(UTC)

The local time at the prime meridian,which passes through Greenwich,England.It is also known as Greenwich mean time,or often simply universal time(UT).

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Electron Density

Electron Density in a unit volume recorded in the ionosphere.

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fmin

The lowest frequency reflected from the ionosphere and recorded in the ionogram. It gives indirect information on the absorption occurring in the ionosphere.

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foE

The critical frequency of the E layer. The maximum frequency which can be reflected from this layer.

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foF2

The critical frequency of the F2 layer. The maximum ordinary mode radiowave frequency capable of vertical reflection from the F2 of the ionosphere.

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f-plot

The plot of the daily behaviour of a certain ionospheric parameter (e.g. foF2, M(3000)F2, fmin) as scaled from the ionogram, superimposed to the monthly median prediction of the same parameter.

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Geomagnetic activity

Natural variations in the geomagnetic field classified into quiet, unsettled, active and storm conditions.

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Geomagnetic storm

: A worldwide disturbance of the Earth's magnetic field, distinct from regular diurnal variations that can be: (i) Minor: a storm for which the Ap index was greater than 29 and less than 50; (ii) Major: a storm for which the Ap index was greater than 49 and less than 100; (iii) Severe: a storm for which the Ap index was 100 or more.

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h'F2

The virtual height of the F2 layer. At night when the F2 and F1 layers merge to form the F layer, h'F is measured. Similar heights are obtained for the E and F1 layers.

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hmF2

The height of maximum obtained by fitting a theoretical h'f curve for the parabola of best fit to the observed ordinary wave trace near foF2 without correcting for underlying ionization.

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High latitudes

With specific reference to zones of geomagnetic activity, "high latitudes" refers to 50deg. to 80deg. geomagnetic latitude. The other zones are equatorial, polar and middle latitude.

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High Frequency(HF)

That portion of the radio frequency spectrum between between 3 and 30 MHz.

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Ionogram

Diagram of the time delay of HF echoes, in term of the virtual height of the ionospheric layers, recorded by an ionosonde over a range of different frequencies (typically between 1 and 20 MHz).

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Ionospheric storm

A disturbance in the F region of the ionosphere, which occurs in connection with geomagnetic storms.

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Interplanetary Magnetic Field (IMF)

The magnetic field carried with the solar wind.

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K Index

A three hourly index of geomagnetic activity relative to an assumed quiet day curve for the recording site. K index values range from 0 (very quiet) up to 9 (extremely disturbed).

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kp index

A 3-hourly planetary geomagnetic index of activity generated in Gottingen, Germany, based on the K index from 12 or 13 geomagnetic observatories distributed around the world. Kp indexes are used to determine the ap indexes.

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Lowest Usable Frequency (LUF)

The lowest frequency which allows an acceptable grade of HF service.

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M(3000)

The ratio of the maximum frequency reflected once from an ionospheric layer over a 3000-km range to the critical frequency of the layer.

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M(3000)F2

The ratio of the maximum usable frequency at a distance of 3000 km to the F2 layer critical frequency, foF2. The M factor is a conversion factor for obtaining the maximum frequency usable in a given oblique propagation distance from the critical frequency at vertical incidence. The M factor for the standard distance of 3000 km is called M(3000) which is usually expressed with the name of reflection layers as M(3000)F2 or M(3000)F1.

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Median

The middle value when all values are ordered.

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Middle latitudes

With specific reference to zones of geomagnetic activity, "middle latitudes" refers to 20 deg. to 50 deg. geomagnetic latitude.

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MUF

Acronym that stands for Maximum Usable Frequency: the highest frequency for which a radio wave can be reflected by the ionosphere.

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N(h) profiles

variation of ionospheric electron density with height.

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Optimum Working Frequency (OWF)

This is the lower decile MUF. It is the frequency which is usable for at least 90% of the days of the month.

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Plasma

gas in which there are approximately equal numbers of positive ions and negative particles. There may also be many neutral particles, as is the case for the ionosphere.

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Plasma frequency

The maximum frequency of internal oscillation of a plasma. The plasma frequency is proportional to the square root of the electron density.

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Reflection

Although a radio wave is actually refracted in the ionosphere, it is often permissible to substitute a simple triangular ray path for the real ray path, as if the ray were reflected from a mirror. Thus radio waves are often referred to as being reflected from the ionosphere.

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Refraction

The bending of a wave when it crosses a boundary between media due to a change in velocity of the wave. Until it reaches the ionosphere, a radio wave propagates in a straight line. Once in the ionosphere, it is refracted back towards the ground. The amount of refraction depends on the electron density of the ionosphere and the operating frequency.

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Refractive index

An index to define the amount of refraction a wave will undergo when it enters a medium.

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Retardation

The delay in propagation of a radio wave near the critical frequency caused by the slowing down of the wave by the ionosphere.

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Smoothed Sunspot Number (SSN)

An average of monthly sunspot numbers centred on the month of concern. There are various formulas, however, the aim is to smooth discrete data points.

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Solar index R12

The 12-monthly smoothed sunspot number R adopted following ITU-R Recommendations.

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Solar index Reff

The effective sunspot number calculated using real-time foF2 observations.

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Sporadic E

A thin ionised layer in the E region that occurs irregularly.

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