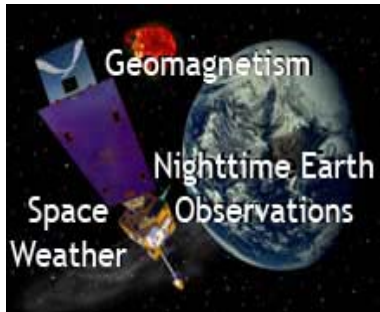


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Sudden Ionospheric Disturbances

Sudden Ionospheric Disturbances are detected in a number of ways: shortwave fadeouts (SWF), increases in cosmic noise absorption (SCNA), enhancement or decrease of low frequency atmospherics (SEA or SDA), sudden phase anomalies at VLF (SPA), sudden enhancements at VLF (SES), sudden phase anomalies at LF (SPA and SFA (Sudden Field Anomalies)), and sudden frequency deviations (SFD).

Short Wave Fadeouts (SWF) events are recognized on fieldstrength recordings of distant high-frequency radio transmissions (1-30 MHz).

Sudden Cosmic Noise Absorption (SCNA) at 18-25 MHz are sudden decreases in the fieldstrength of the recorded cosmic noise signal, followed by gradual recovery. **Sudden Enhancement of Atmospherics (SEA)** are sudden increases in the fieldstrength of low frequency recordings near 27 kHz.

Sudden phase anomalies (SPA) are observed as a phase shift of the downcoming skywave on VLF recordings or on pulse measurements on LF recordings. **Sudden enhancements of signal strength (SES)** are observed on fieldstrength recordings of extremely stable VLF transmissions (5 to 50 kHz). They are similar to SEA except that the receivers are narrow band and pick up manmade VLF transmissions. SPA recorded by LF pulse observations over a one-hop propagation path yield information more indicative of the ionospheric changes occurring at the midpoint of the path, rather than over the entire path. LF phase observations, reported in degrees, represent an increase in sensitivity over VLF observations.

On LF amplitude recordings on paths about 1000 km long, **sudden field anomalies (SFA)** can be detected. These are events recognized by indirect phase measurements made evident by the one-hop sky wave interfering with the ground wave.

A **sudden frequency deviation (SFD)** is an event where the received frequency of an HF radio wave reflected from the ionosphere increases suddenly, peaks, and then decays back to the transmitted frequency. Sometimes several peaks occur and usually the frequency deviation takes on negative values during the decaying portion of an SFD.

1. Sudden Ionospheric Disturbances 1958-present ([descriptive text](#))

- [List of stations](#)
- [SID Format](#) (Text) -- print before viewing data
 - [SID event listings in annual files](#) (All ftp)

2. PDF Tables of SIDs [2000-2009/07](#)

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