

# Natural Radio

News, Comments and Letters About Natural Radio

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It's hard to believe we are moving into the Holiday season again. I haven't had time to do the final tweeking and testing of my new receiver, but am hoping to finish that up after the holidays.

Since we're at the bottom of the sunspot cycle, there haven't been a lot of reports of Natural Radio activity, but the current predictions expect the beginning of long-awaited cycle 24 to be in March of 2008.

**Plasma Plumes** – Researchers have understood that coronal mass ejections and the ensuing geomagnetic storms could disrupt communications between satellites and earth. GPS navigation errors are one of the unfortunate results of this disruption. However, several years ago, the disruption of GPS signals led to the discovery of large “Ion Plumes” that form in the upper ionosphere in response to the disruption caused by the CME. These concentrated plumes of plasma refract and delay the signals from satellites.

These plumes are likened to smoke billowing out of a factory smokestack. But in this case we don't know where the smokestack is. Scientists don't know how the plumes are generated, or where the extra plasma that they contain comes from, but there are hints that they originate high above the equator and move outward from there.

Last month, there was a workshop in Addis Ababa, Ethiopia, to discuss the phenomenon. The Africa Space Weather Workshop, organized under the auspices of the 2007 International Heliophysical Year (IHY), kicked off Nov. 12th with nearly 100 scientists and students in attendance.

I haven't been able to find much information on these ion plumes since they are a relatively new area of study, but I would guess they affect radio propagation in general and further study will give us a better understanding of propagation anomalies.

**Renato's Site** – Renato Romero is now providing live data from his IK1QFK monitoring station in Cumiana (TO) in Northwest Italy.

System one, GEOMAR, has an amplitude scale with two channels listed below:

- Channel 1, seismic monitor. Frequency range: 1 to 10 Hz for the top spectrogram. Signals coming from geophone I/O SENSOR Nederland b.v. model SM-4/UB8
- Channel 2, electric field. Frequency range: 1 to 105 Hz for the bottom one. Signals coming from Marconi antenna: a big "T" 11 m high with a double top hat 45 m long

System two: MINIMAL, has an amplitude scale with two magnetic components of the RDF spectrogram. Spectrogram: radio direction finding colors, obtained with two orthogonal loops EW and NS oriented. Frequency range 1 to 105 Hz. System sensitivity of 0.5 pT @ 10 Hz.

Both systems show 4 hours of data and are updated hourly. See the data and more information at <http://www.vlf.it/livedata.html>.