

DETECTING WHISTLERS WITH A VLF ANTENNA LOCATED IN HUMAIN (BELGIUM)

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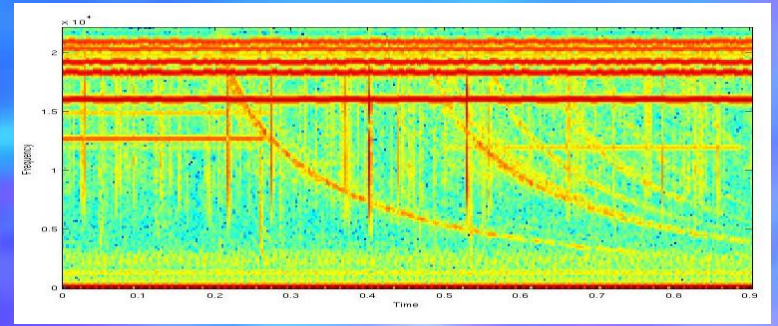
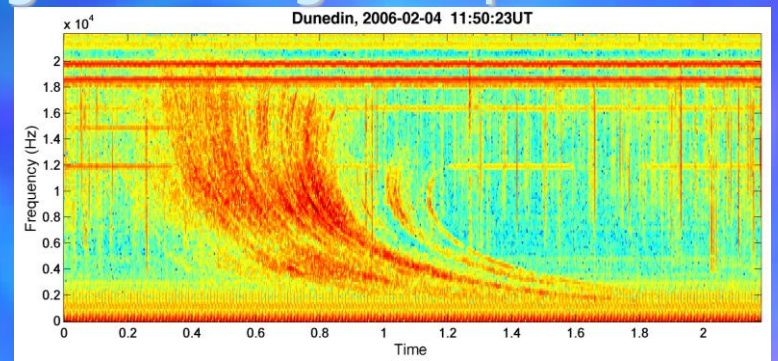
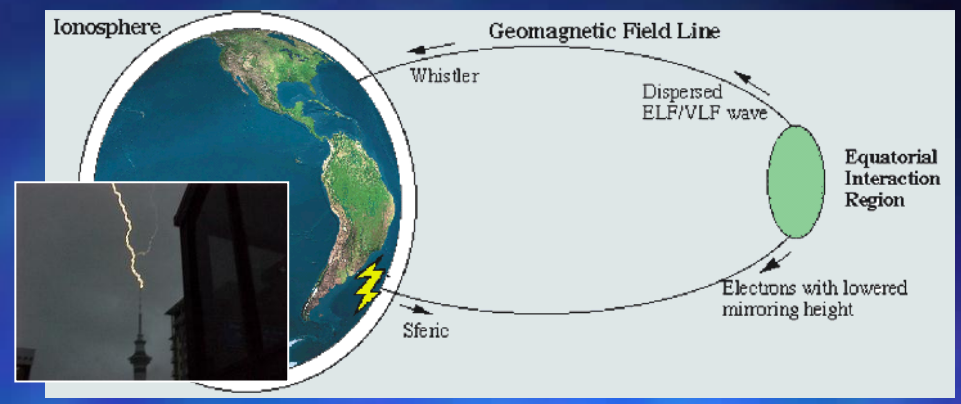


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Whistlers

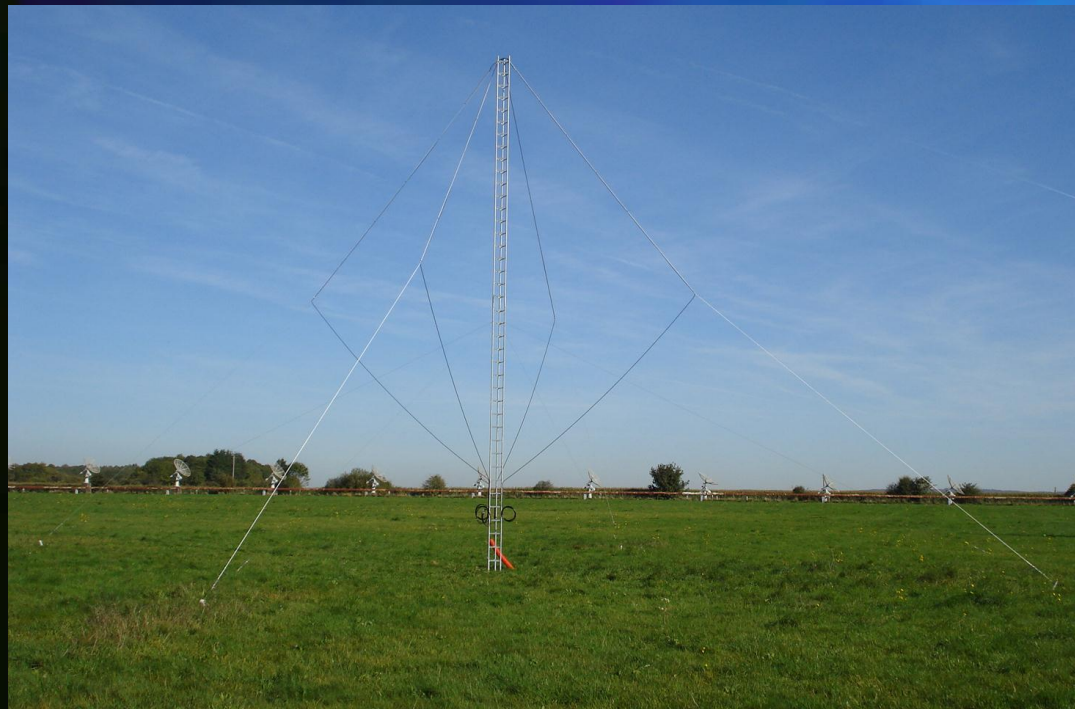


- Whistlers are VLF (3-30 kHz) emissions initiated by lightning, propagating along magnetic field lines, observed on ground and in space
- Whistlers have particular frequency-time characteristics acquired as they propagate through the magnetospheric plasma
- Propagation time delay of whistlers depends on plasma density along propagation paths
⇒ Possibility to derive plasma density (in plasmasphere) from whistlers measurements



VLF Antenna in Humain

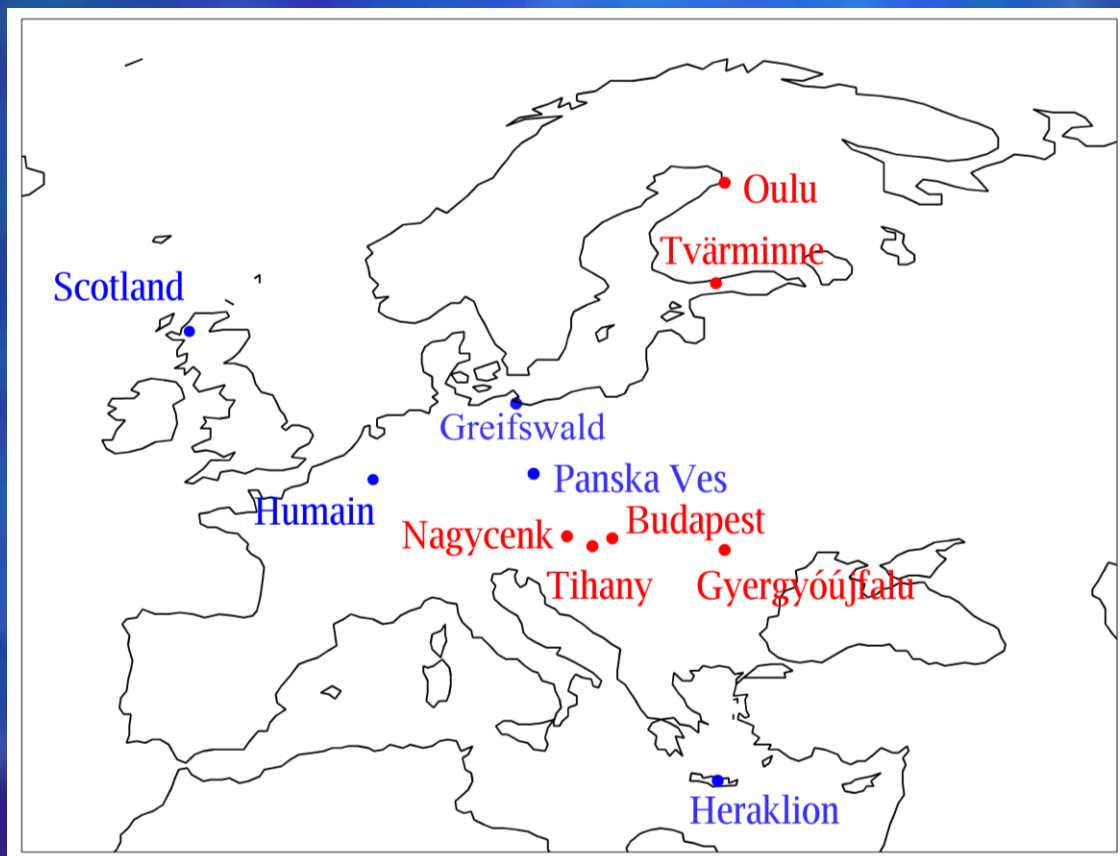
- Meet the responsible of AWDANet project at Space Weather Week in Bruges in November 2009
- Selection of material, size of antenna, location from January 2010
- Final installation of the antenna in October 2010



AWDANet in Europe

■ AWDANet = Automatic Whistler Detector and Analyzer systems' Network

- Network of AWDA systems covering low-, mid- and high (magnetic) latitudes since 2002 including conjugate locations
- Network initiated by J. Lichtenberger from Hungary
- Same type of antennas with same data analysis software
- In Europe, 6 antennas **in operations** and 5 antennas **planned or in preparation**

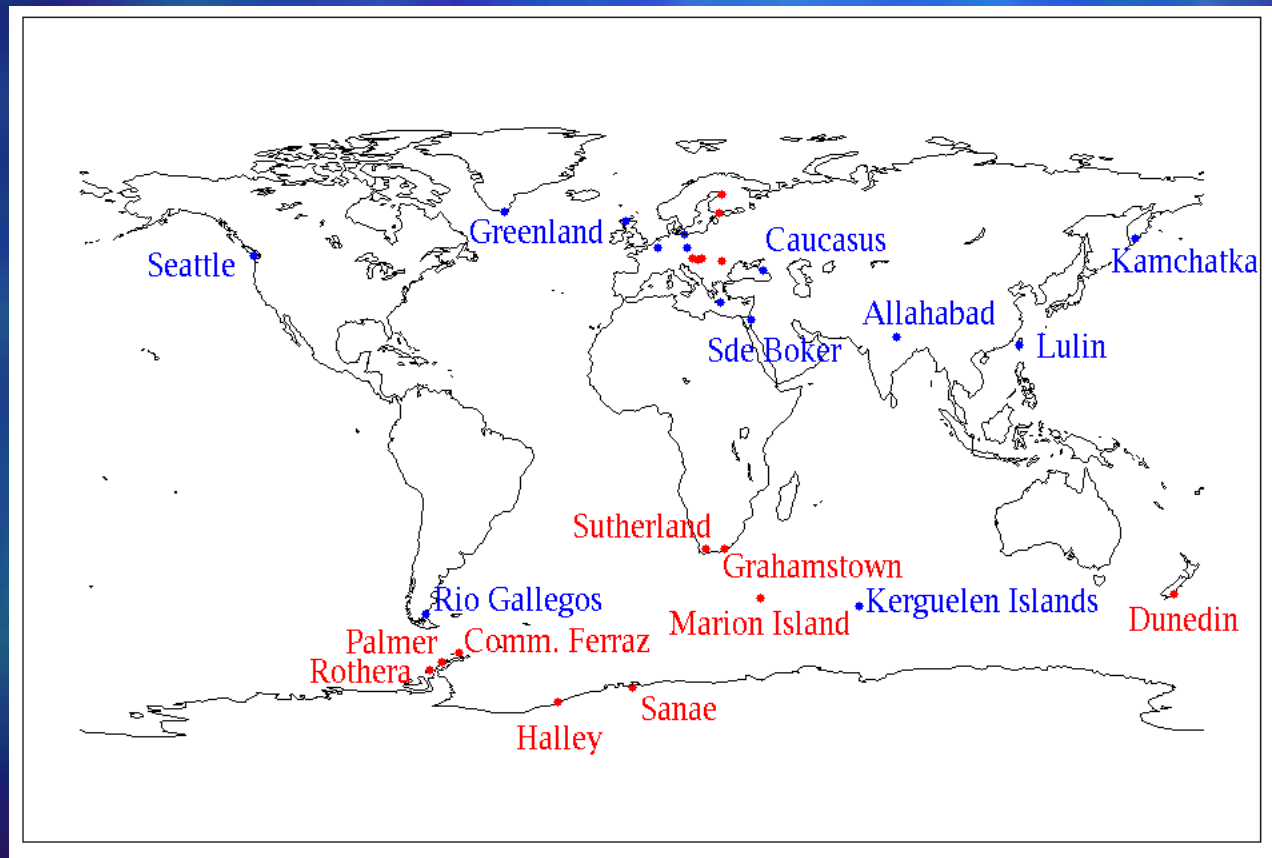


AWDANet in the World



AWDANet

- In World except Europe, 9 antennas **in operations** and 9 antennas **planned or in preparation**
- Particular search of locations at conjugate points of Europe antennas



Future

- Make the first tests of the antenna (November 2010)
- Meet the responsible of AWDANet project at Space Weather Week in Bruges (November 2010)
- Use data analysis software to detect automatically whistlers (2011)
- Derive plasma density from whistlers observations (2011)
- Start compared studies with other antennas (2011)
- Start conjugated analysis with in-situ measurements of plasma density in plasmasphere (2011)
- Start statistical analysis (2011)
- ...

