



Potential Finnish Contributions to ILWS

Prof. Tuija I. Pulkkinen
Finnish Meteorological Institute
Helsinki, Finland

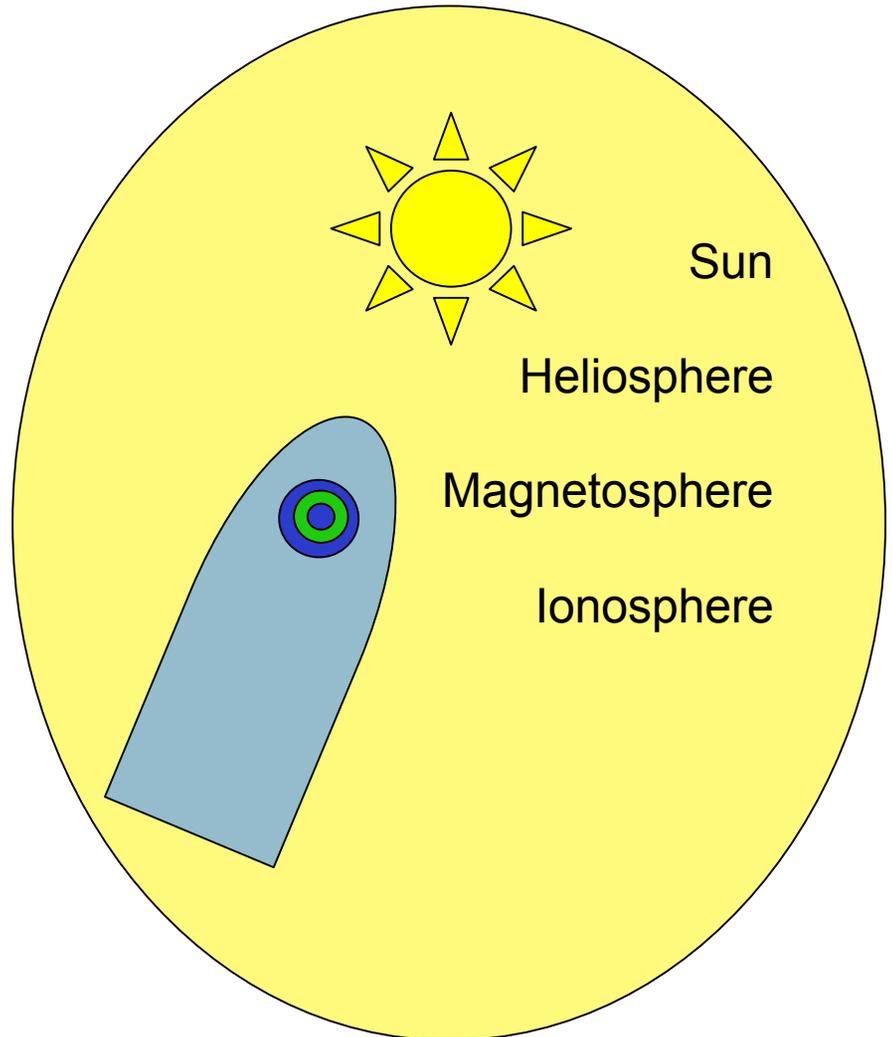
- Space activities in Finland
 - ESA member since 1995
 - 40 MEuro annual budget
- Space science in Finland
 - 6 MEuro budget for projects
 - 130 scientists
 - 4 larger research groups
 - 150 refereed publications/year





Past experience in ILWS science: In space

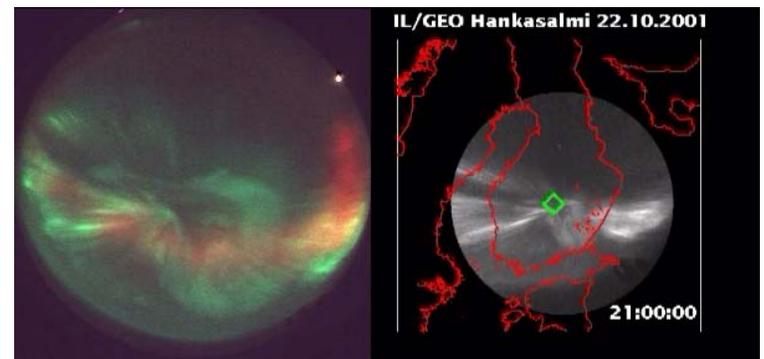
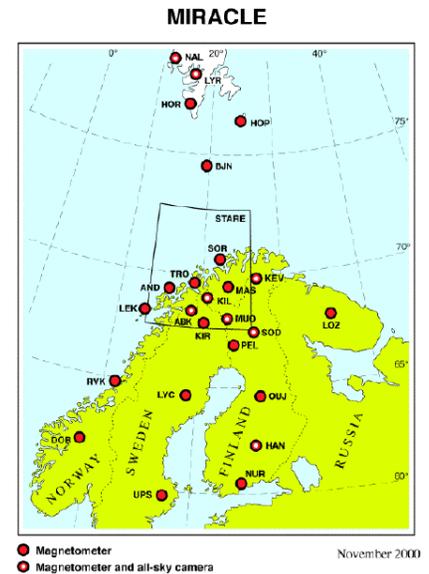
- ESA science programme:
 - SOHO: ERNE, SWAN
 - Cluster: EFW, Rapid
- Other international missions:
 - Sweden: Viking, Freja, Astrid
 - USA: Polar
 - Russia: Interball





Past experience in ILWS science: On ground

- Finland offers infrastructure in the auroral region (60-70° geog. latitude)
- MIRACLE
 - 25 magnetometers, 8 all-sky cameras, radar
 - Continuous monitoring at 10-s resolution
- Radar networks
 - EISCAT
 - SuperDARN

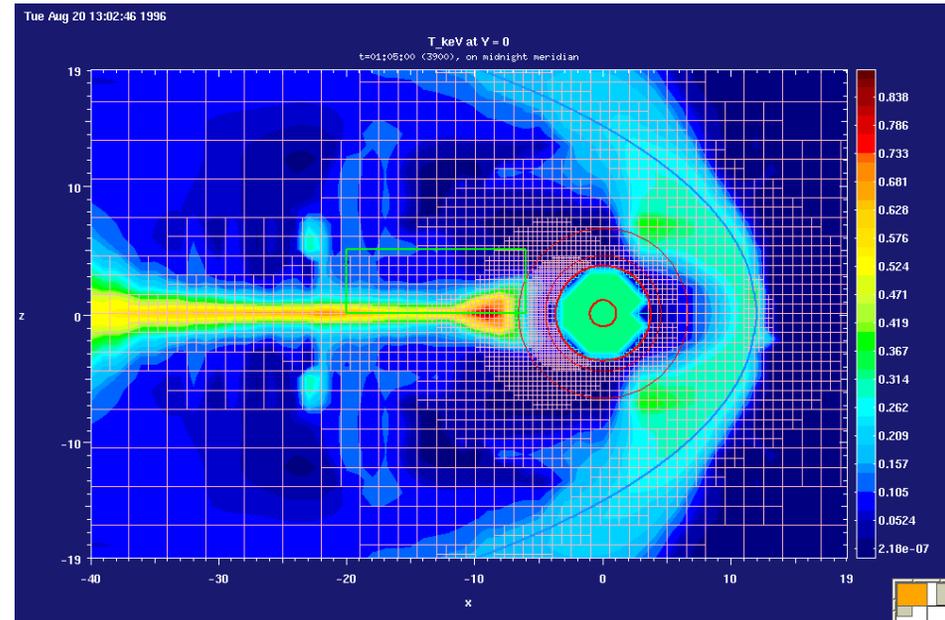
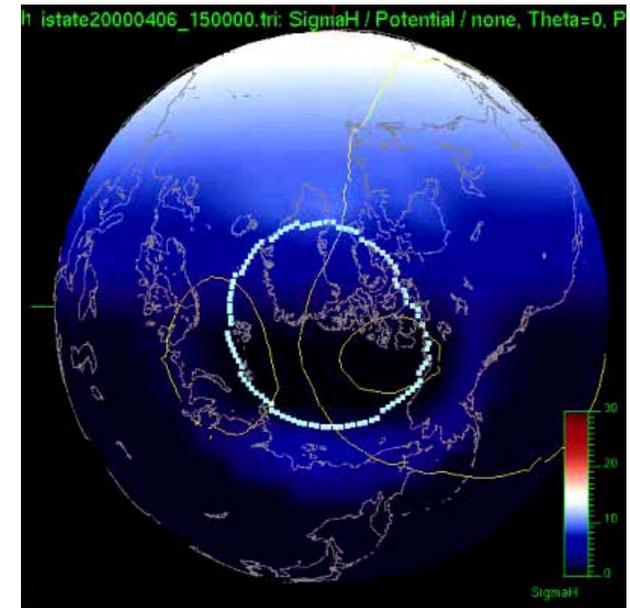




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Numerical Space Physics

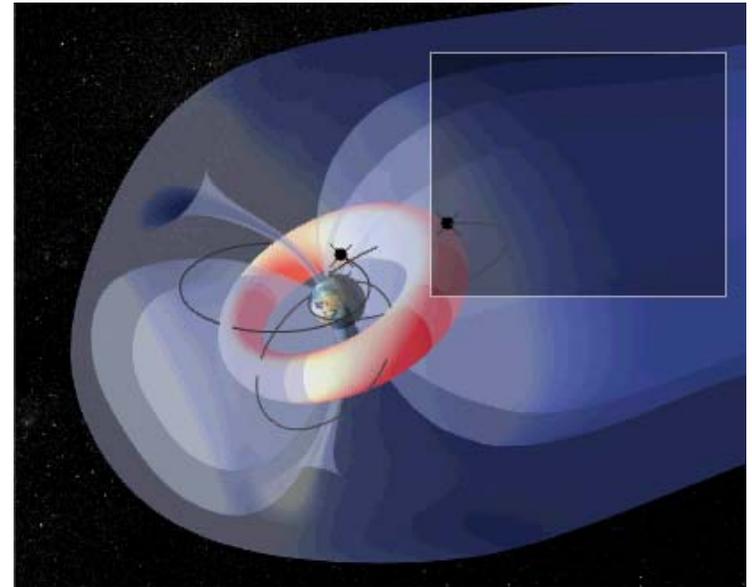
- Global MHD simulations
 - Solar wind - magnetosphere - ionosphere interaction
- Empirical field modeling
 - Substorms
- Particle acceleration
 - Ring current formation
 - Solar energetic particles





Finnish involvement in ILWS missions

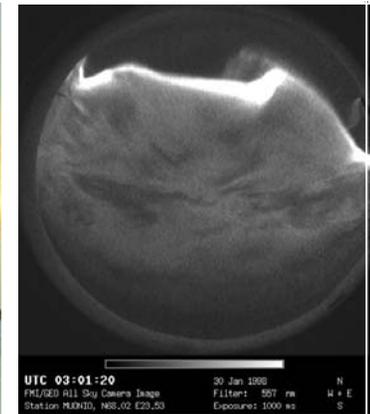
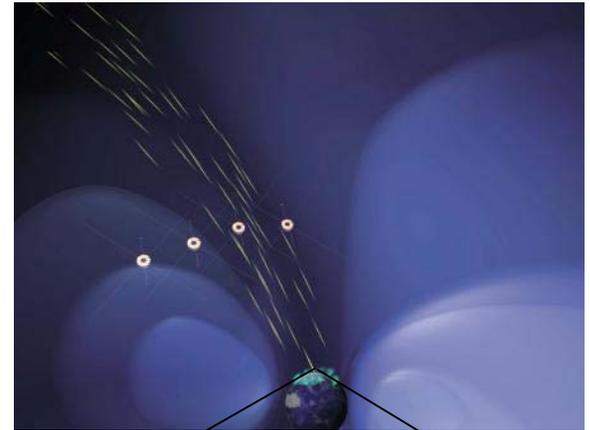
- BepiColombo
 - Solar wind - planetary interactions
 - Solar X-ray emissions
- Solar Orbiter
 - Energetic particles
 - UV and X-ray observations
- Interests for future opportunities
 - STORMS:
 - inner magnetosphere, space weather
 - Other magnetospheric/auroral physics missions





Finnish involvement in ILWS ground-based activities

- Ground-based instrumentation
 - Continuous monitoring
 - Optical instruments, magnetometers, ionospheric radars
 - Continuous real-time data taking
 - Immediate data publication via WWW
 - Future of EISCAT
- Sodankylä
 - Instrument platform
 - Data receiving station operative since 2003





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Finnish involvement in European space weather activities

- ESA space weather initiatives
- EU Framework Programme
- Auroral and GIC forecasts
- STORMS mission to resolve scientific challenges related to space weather

