



International Living With a Star 2013 – Sweden

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Summary

- There are several prominent research groups in Sweden, relevant to ILWS.
- Swedish researchers participate to international space missions and have access to valuable facilities.
- The main activities are through international collaboration, e.g. ESA, but national projects are also conducted.

Examples of research groups

- Institute of Space Physics (IRF)
- Royal Institute of Technology (KTH)
- Institute of Solar Physics

Institute of Space Physics I

- Solar Terrestrial Physics
- Solar System Physics and Space Technology
- Space Plasma Physics
- Polar Atmospheric Research
- Kiruna
- Uppsala
- Umeå
- Lund



Institute of Space Physics II

- Governmental research institute
- ~100 employees
- Instruments around Earth, planets, and in the solar system
- Magnetometers
- Riometers
- All-sky camera
- Ionosondes
- Weather station
- Test laboratory

KTH – Space and Plasma Physics group

- Earth's magnetosphere
- Solar system
- ~20 employees
- Instruments around Earth and in Solar system
- Sounding rockets
- Test laboratory



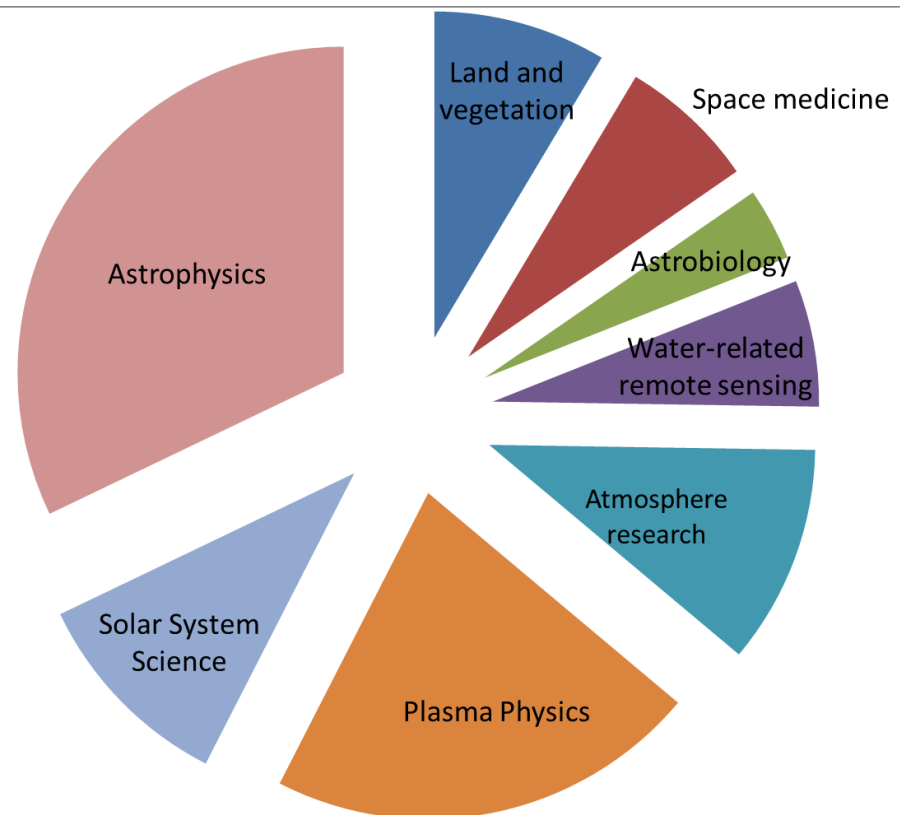
Institute of Solar Physics

- National research infrastructure, VR
- Stockholm University
- Theoretical and observational solar physics
- ~10 employees
- Swedish 1-m Solar Telescope, La Palma



National Research Programme

- Space Research
- Earth Observation and Remote Sensing Research
- ~11 M€/year
- Open call
- Peer review



Examples of Facilities

- Esrange

- Rocket and balloon launch facility
- High latitude ground station



- EISCAT

- Incoherent scattered radar system
- S, N, SF, JP, UK, China



Examples of missions

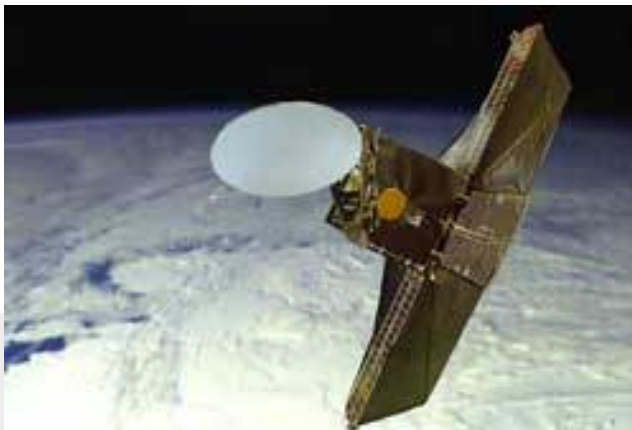
- Cluster (IRF, KTH)
- Mars Express (IRF)
- Venus Express (IRF)
- Rosetta (IRF, KTH)
- Cassini (IRF)
- Future missions
 - MMS (KTH, IRF)
 - Solar Orbiter (IRF, KTH)
 - Bepi-Colombo (IRF, KTH)
 - SWARM (IRF)
 - JUICE ?

ESA programmes

- Space Situational Awareness
 - Sweden participates since C-MIN 12
 - Prio: SWE & SST
 - Multi-agency collaboration
- Science Programme
 - Cluster, MEX, VEX, Cassini, BepiColombo, Solar Orbiter, JUICE ...
- Earth Observation
 - SWARM

National projects

- SPIDER
 - Sounding rocket project
 - KTH
 - Auroral Electrojet measurement by multiple recoverable payloads
- National sounding rocket and balloon programme
 - 1st call in 2013!
- ODIN
 - Aeronomy mission on its 12th year, more than a full solar cycle
 - SE, CND, FI, FR, ESA



Innovative low-cost research satellites

- Call for Ideas during 2012
- Extreme low-cost challenge
- High quality science
- 12 project ideas
- 7 in ILWS topics
- 4 in feasibility study
- Conclusion: Feasibility not yet proven
- Alfvén
 - Double LEO s/c
 - Small scale structure of the Aurora
- Tor
 - High elliptical orbit
 - Dissipation of energy at kinetic scales in SW
- METAL
 - Fly-by of metallic asteroid