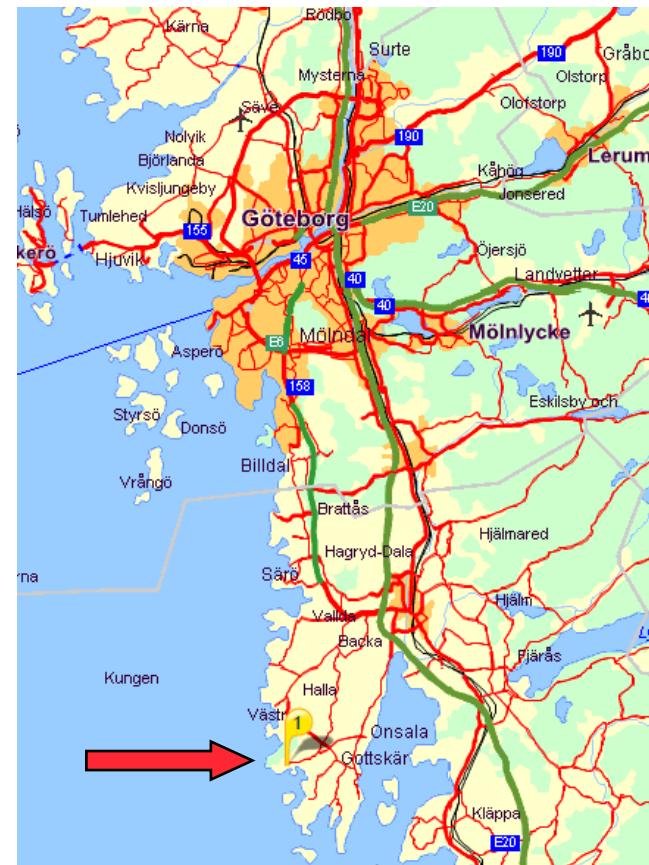




Onsala Space Observatory (OSO)

is the Swedish National Facility for Radio Astronomy located on the peninsula Onsala, 45 km south of Gothenburg





CHALMERS

På svenska

Earth and Space Sciences

[Research](#) [Education](#) [Organization](#) [Contact](#) [News summary](#)



EARTH AND SPACE SCIENCES

Curiosity is the driving force behind the our research. Our goals are to find new knowledge about space, our earth and its future energy supply. We seek to understand the origins of the universe, the earth and life. At the same time, we observe what is happening on our earth today, to be able to make predictions about the future and promote sustainable development. To reach our goals, we develop highly sensitive measuring instruments and observational methods, as well as advanced algorithms for data analysis and theoretical models. The department is also host to the Swedish National Facility for Radio Astronomy – Onsala Space Observatory – which plays a prominent role in our research activities.

Calendar

Negative ions and molecules in astrophysics
Workshop, 22 August 2011 09:00

Astronomdagarna 2011
Conference, 29 September 2011 12:00

[Coming licentiate seminars and dissertations at the department...](#)

SEARCH

Whole site
 Staff



Annual Report 2010

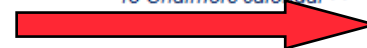
RESEARCH GROUPS

- Advanced receiver development...
- Global environmental measurements...
- Nonlinear electrodynamics...
- Optical remote sensing...
- Radar remote sensing...
- Radio astronomy and astrophysics...
- Space geodesy and geodynamics...
- Transport theory...

Onsala Space Observatory

Administration...

[To Chalmers calendar >>](#)



Financing

Operation budget: \$7.2M (2011)

- Swedish Research Council (VR) operation budget: \$5.2M
- Chalmers operation budget: \$1.8M
- EU: RadioNet, TransNational Access: \$0.2M

 OSO, APEX, JIVE,...

Projects:

- VR: LOFAR station: \$1.1M
- EU: ALMA Band 5: \$7.7M
- EU: RadioNet, AMSTAR+: \$0.2M
- EU:NEXPreS (e-VLBI): \$0.4M

25m telescope



- Built 1963
- Used mostly for VLBI
- Detected interstellar CH
- First intercontinental VLBI (1968)
- Operating range: 0.8-1.8, 4.5-5.3, 6.0-6.7 GHz
- 2x512 MHz → 4 Gbps (6cm)

- Future plans:
 - ✓ Increase bandwidth
 - ✓ Receiver upgrade
 - ✓ e-MERLIN outrigger

20m telescope

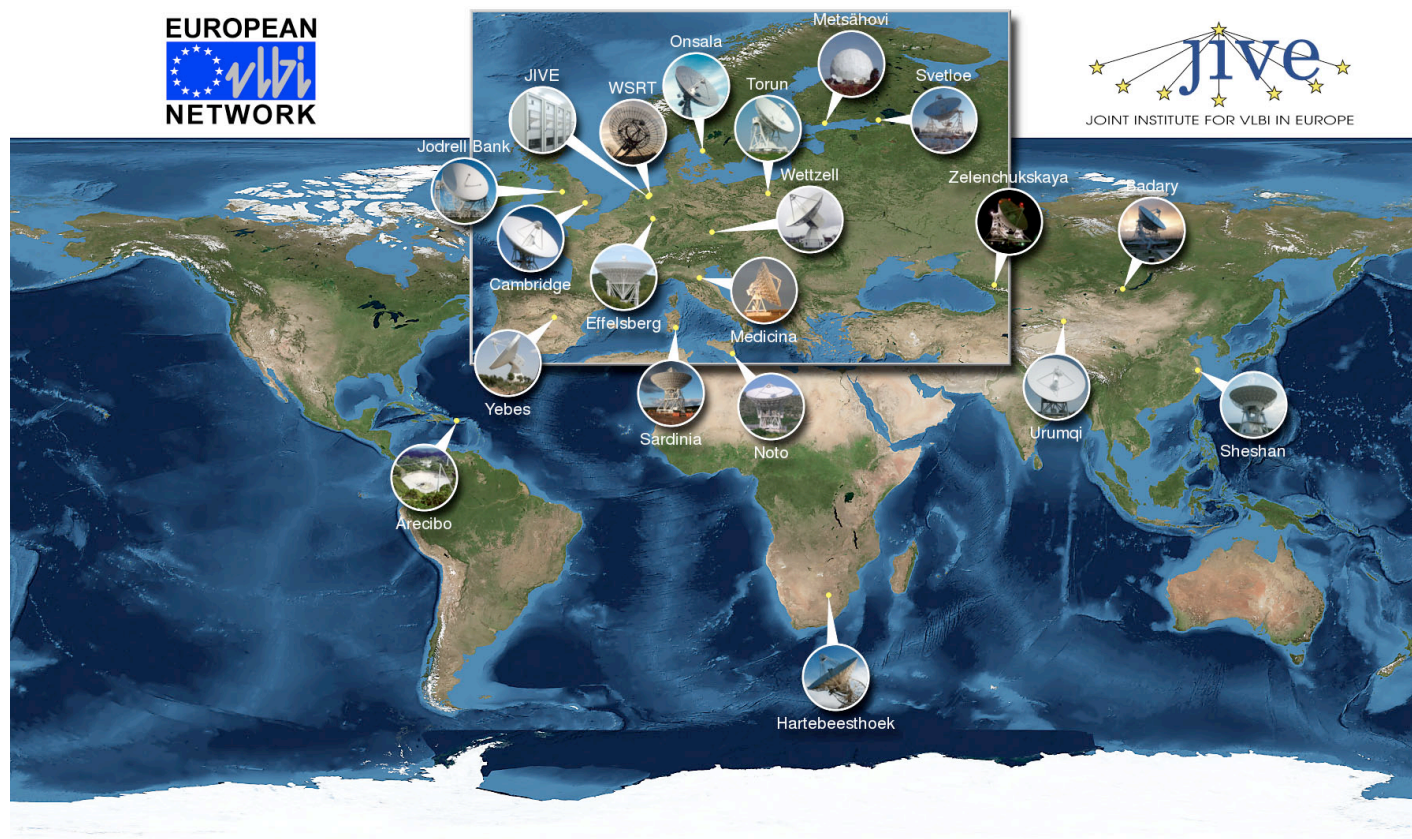
Proposals: April 15, October 15



- Built 1976
- Used for single-dish and VLBI observations
- Detected interstellar HOC⁺, C₃H, CH₃C₃N
- First mm-VLBI
- Operating range: S/X-band, 18-50 GHz, 84-116 GHz

- Future plans:
 - ✓ Dual polarisation at 3 mm
 - ✓ 4 mm receiver (70-85 GHz)
 - ✓ Increase bandwidth
 - ✓ e-MERLIN outrigger at 22 GHz?
 - ✓ Phase up 20m+25m for 5&6 cm?

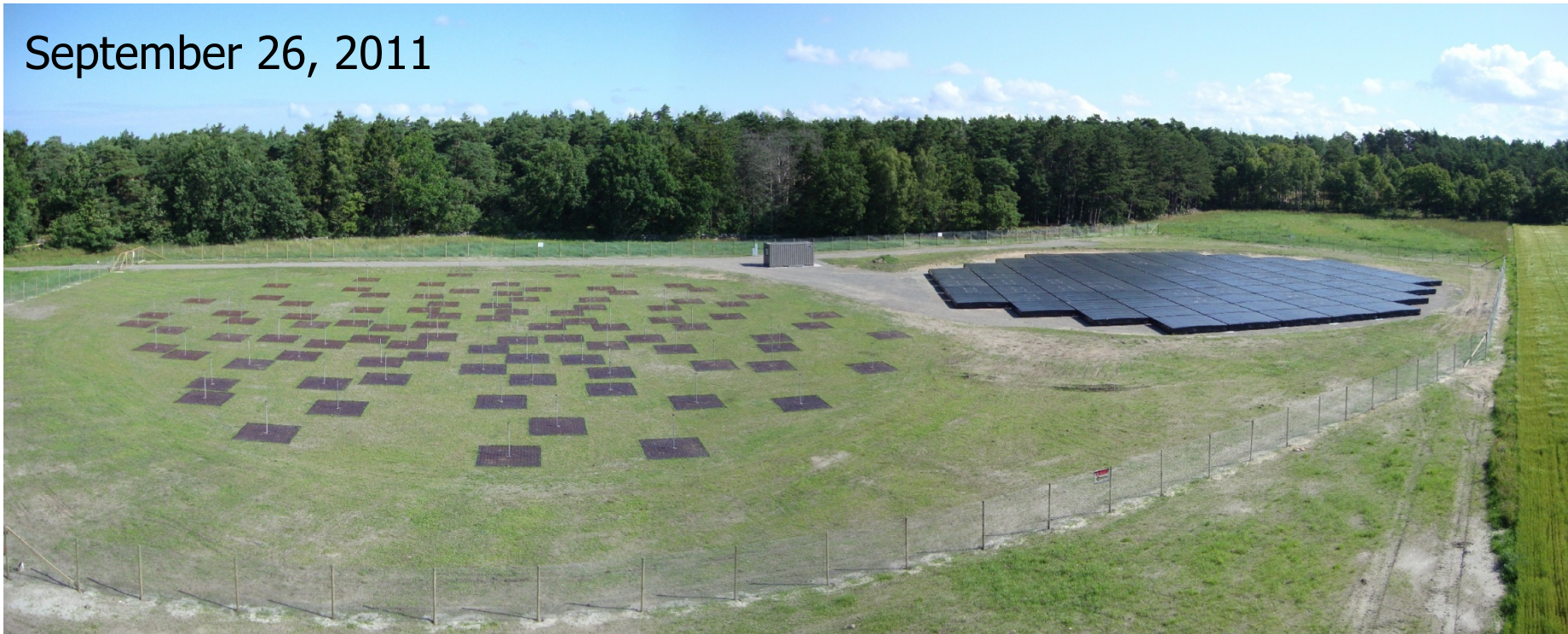
OSO and VLBI



- EVN
- GMVA
- IVS

OSO and LOFAR

September 26, 2011



Atacama Pathfinder Experiment - APEX

MPIfR 50%, ESO 27%, Sweden 23% (Chile 10%)

APEX-SMT-SMA fringes @
230 GHz, May 7!!
(3C279).

OSO/GARD (Victor Belitsky):
Swedish Heterodyne Facility
Instrument (SHeFI)

- APEX-1: SIS 211-275 GHz
- APEX-2: SIS 275-370 GHz
- APEX-3: SIS 385-500 GHz
- APEX-T2: HEB 1250-1400 GHz

Proposals for APEX (Swedish time):
April 15 and October 15

<http://www.chalmers.se/rss>

Operation until 2015



OSO involvement in ALMA



- Configuration study
- Water Vapour Radiometer
- ALMA Band 5: Receivers at 183 GHz (full array)
- A Nordic ALMA Regional Centre
- Phasing ALMA for VLBI?

Other activities

- Geodetic activities
 - ✓ Typically 25 (40) geodetic IVS experiments/year
 - ✓ Superconducting gravimeter
 - ✓ National, international GPS reference station
 - ✓ Aeronomy station: measuring atmospheric H_2O , O_3 , and CO
- Time & frequency laboratory:
 - ✓ Two masers
 - ✓ OSO part of UTC determination
- SKA
- EU: RadioNet3 (TNA + AETHER + DIVA), NEXPreS, ...



Onsala Twin Telescope



Onsala Space Observatory will receive SEK 29.7 million to build two new radio telescopes.