

# A LOFAR Station at Onsala:

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- Onsala Space Observatory, Swedish national facility for radio astronomy (one of two with MAX lab) provides access for Swedish astronomers to radio/mm-facilities
- Onsala has long time involvement in interferometry, VLBI, ALMA etc.
- Involved with real-time VLBI interferometry over the internet since 2004. Synergy with LOFAR.

# First Transatlantic Radio Interferometry, Onsala, January 1968

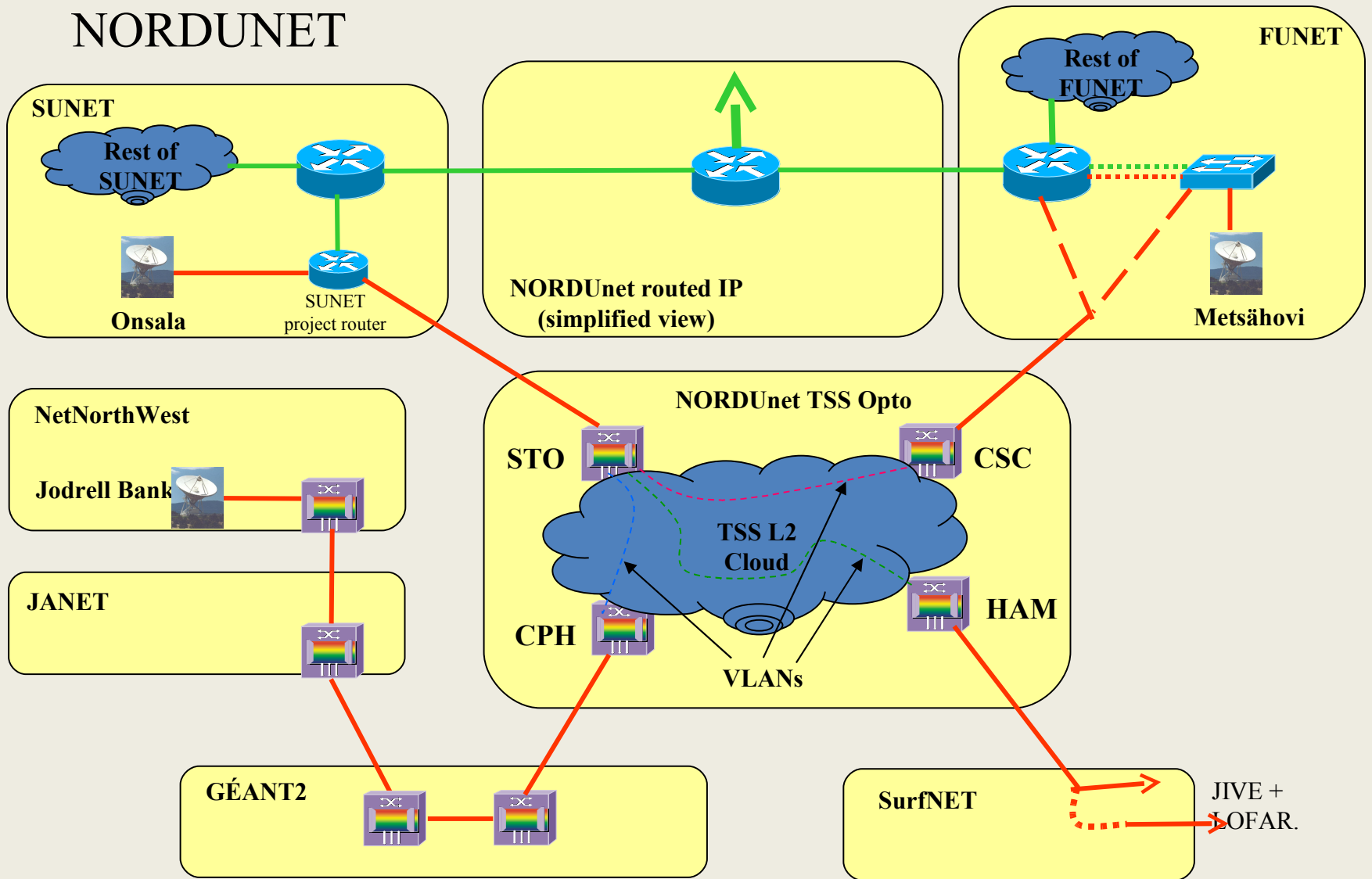


Using recorded media, definitely not real-time.

# Onsala internet Interferometry

- In 2006 first ever Trans-Atlantic real time fringes from Onsala – Haystack (Mass, USA)
- In June 2008 demonstrated 4Gbps from Stockholm through to Jodrell Bank UK
- Have already SUNET/NORDUNET 10Gbit/s dedicated link through to Netherlands so we can simultaneously send LOFAR (3Gbit/s) data to Groningen plus eVLBI data.
- Yesterday, Onsala involved in 5 continent 24hr, eVLBI an event to kick off the International Year of Astronomy

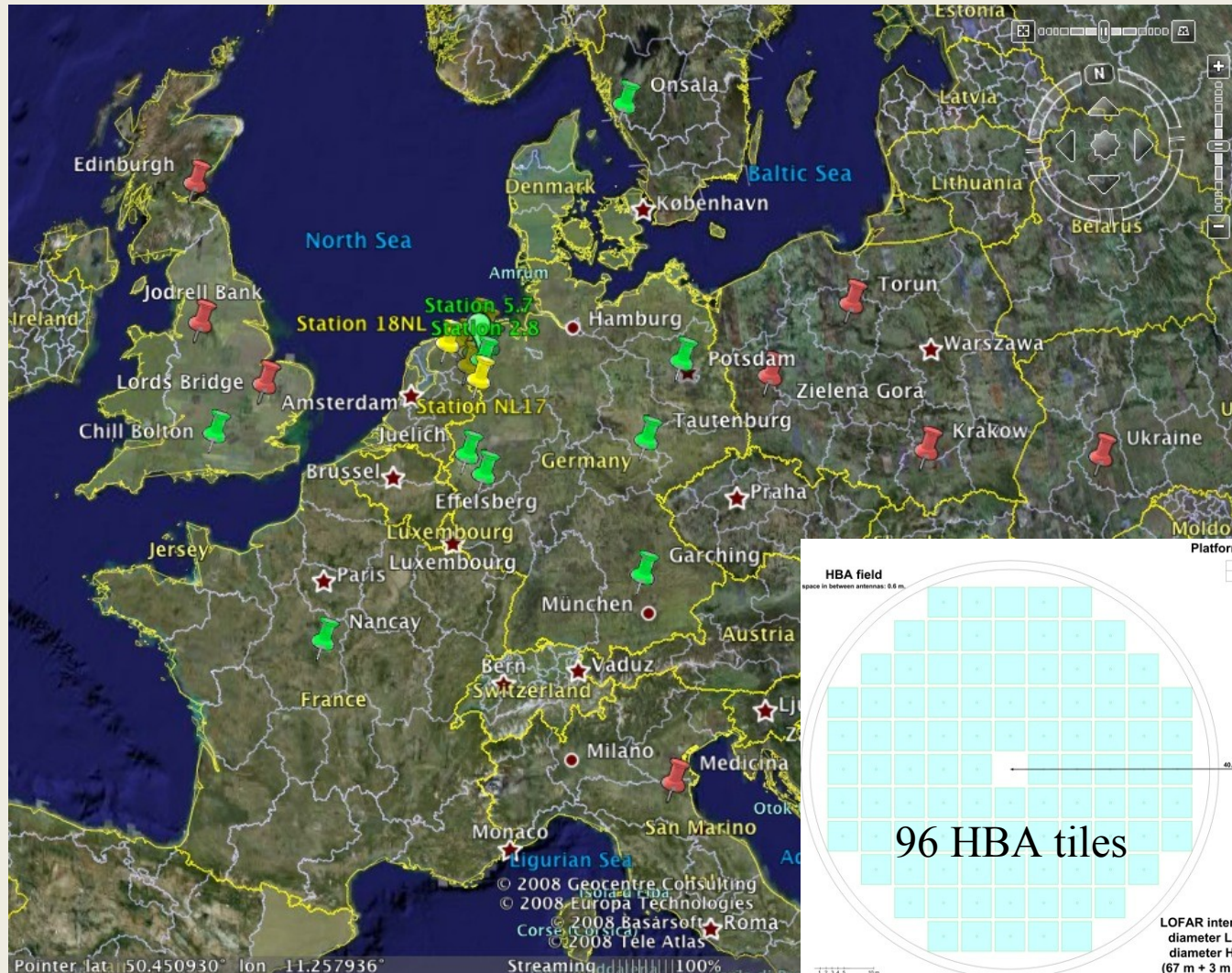
# Network Infrastructure- lots of cooperation with SUNET, NORDUNET



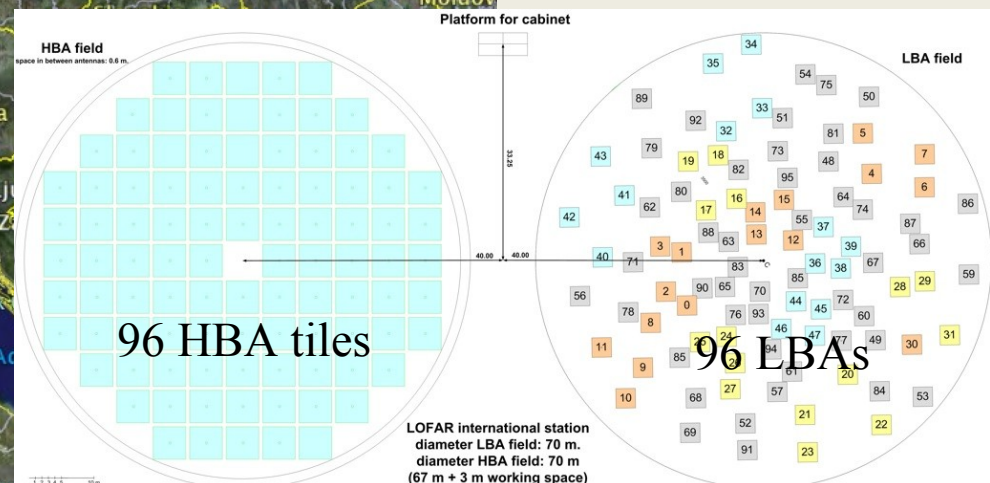
# Why a Swedish LOFAR station?

- LOFAR a precursor instrument to the Square Kilometer Array – promotes Sweden's involvement in this major project (Astronet, ESFRI and VR roadmaps).
- Concentrate on a standard LOFAR station, for rapid 'buy-in' and access to the whole LOFAR instrument for Swedish astronomers (and other users)
- Involves a new (Swedish) community in overall LOFAR project with complimentary interests/skills (e.g. Ionosphere research, radar astronomy, Space Weather, astro-particle physics etc etc).
- Will provide much needed North-South baselines with international LOFAR

# ASTRON International-LOFAR



Swedish station greatly helps NS uv coverage

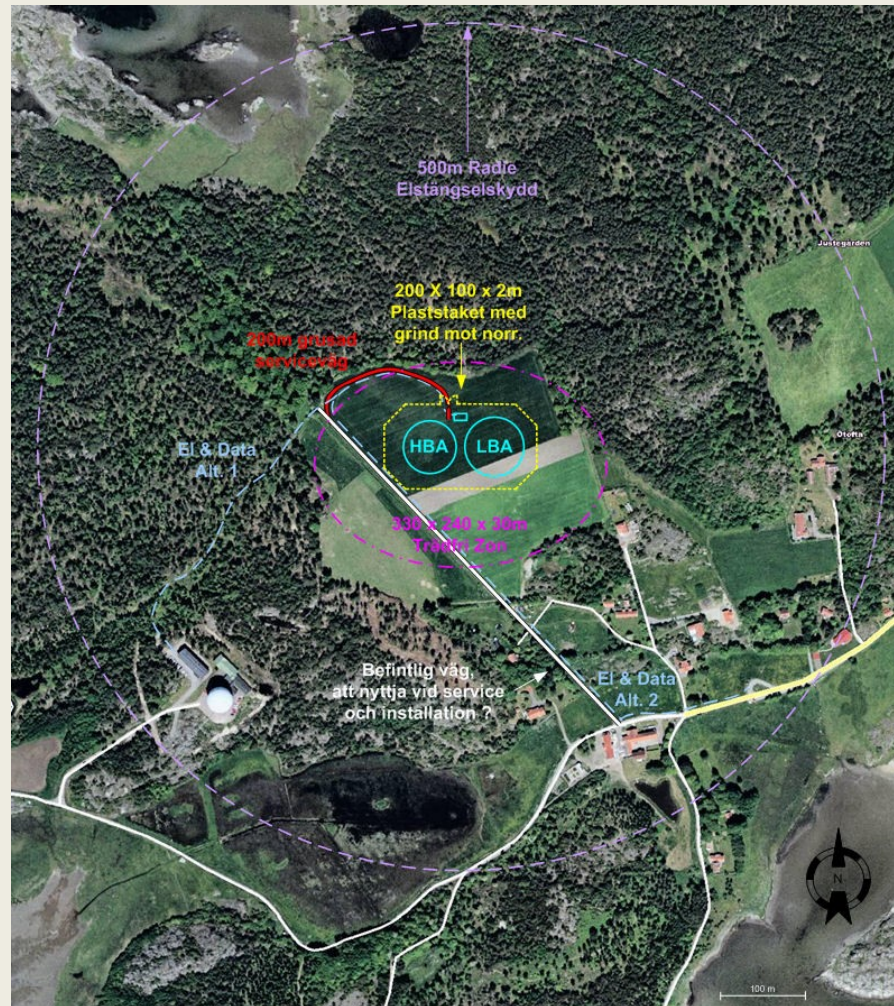


Inter-tile distance: 0.6m

# Timeline-LOFAR station at Onsala

- Research Council planning grant for 2006/2007 (600kKr). Meetings, RFI (radio frequency interference) test of our site by ASTRON–positive result
- November 2007 VR/KFI approval for a full LOFAR station successful (6.8Mkr). 😊++
- Site identified, expect full access by August/September, delivery by October and full operation by November 2009.
- Manpower, Network Engineer (EU EXPRoS project), new PhD student, Interferometry software support

# Onsala LOFAR station Site





# Onsala LOFAR station sites



# Swedish Science Involvement

- Garrelt Mellema, Epoch of Reionisation KSP – Stockholm
- John Conway, Extragalactic Survey KSP core group + other interested Swedes
- Bo Thide, Solar and Space Weather KSP, New Low freq observing techniques (LOIS etc)
- Several Swedish attendees at the Transients KSP meeting in Amsterdam in December
- New contributions in ionospheric, astroparticle physics etc etc.