

LOFAR Status

Mike Garrett
(ASTRON/Leiden/Swinburne)

LOFAR = Low Frequency Array

- 30-80 MHz (LBAs) & 120-240 MHz (HBAs)

Based on aperture array concept.....

- at least 36 stations in the NL

(18 stations < 2 km + 18 stations < 100 km)

- at least 8 additional EU stations in DE, SE, FR, UK, ++

Large field of view - 8 simultaneous beams possible

Unprecedented resolution and sensitivity at this λ

Now in roll-out phase.....

Various delays:

- bird breeding season
- wet and cold winter: problems flattening station fields
- more recently fires!



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LOFAR Status (cont)

At the end of the year we had to stockpile antenna hardware:



14-06-2009

LOFAR Status (cont)

We also decided to start populating the electronic cabinets



LOFAR Status (cont)



LOFAR Status (cont)

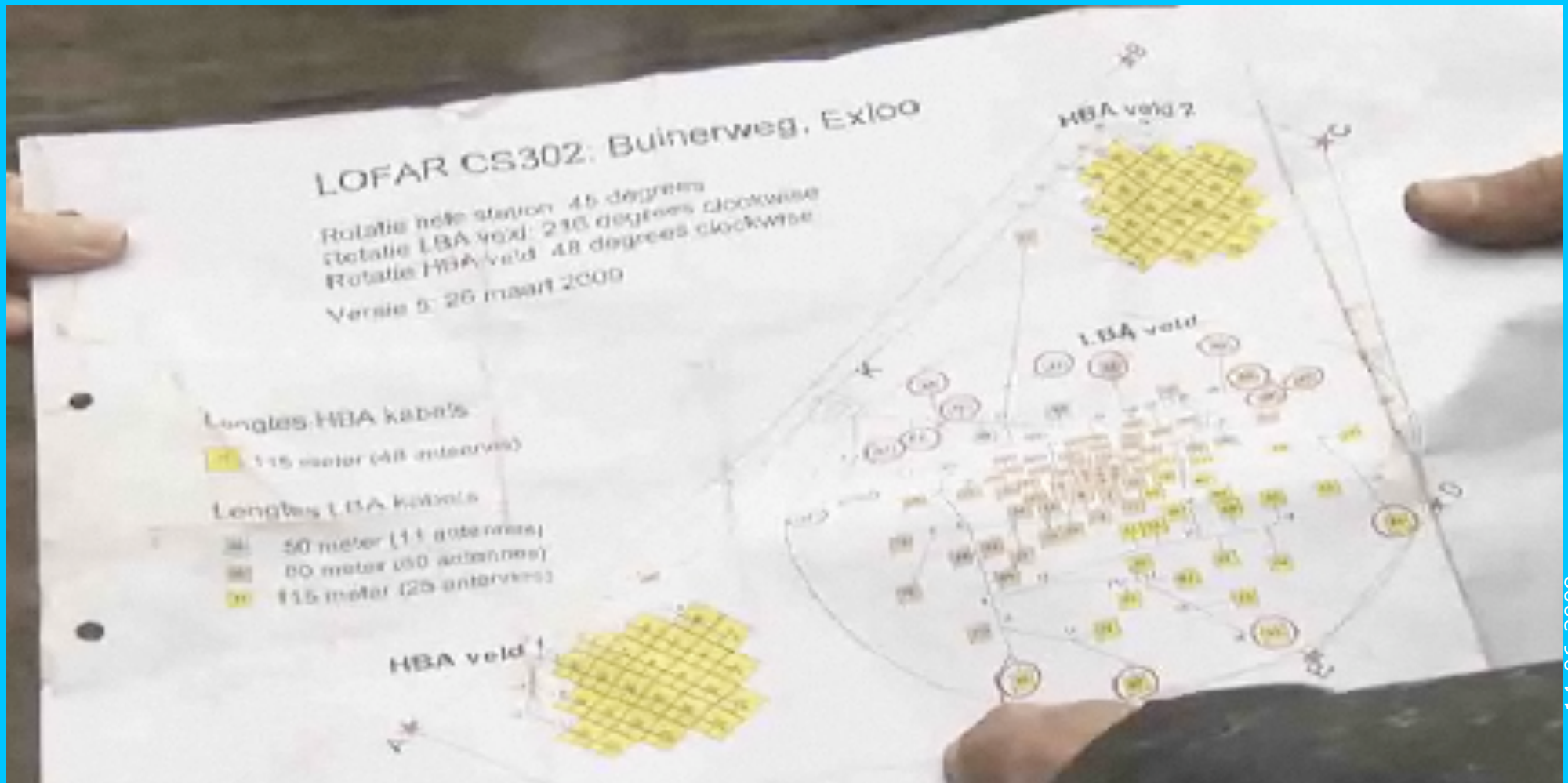
ASTRON



ASTRON staff
in-situ for
cabinet tests

CS302 - the first station!

First the plan:



14-06-2009

CS302 - the first station!

First the cabinet foundations:



14-06-2009

CS302 - the first station!

Then the cabinet itself:



CS302 - the first station!



14-06-2009

CS302 - the first station!



14-06-2009

CS302 - the first station!

Jan-Pieter de Rijer (ASTRON)



14-06-2009

CS302 - the first station!

Marking out the position of the antennas:



14-06-2009

CS302 - the first station!

LBA co-axial cable and ground plane:

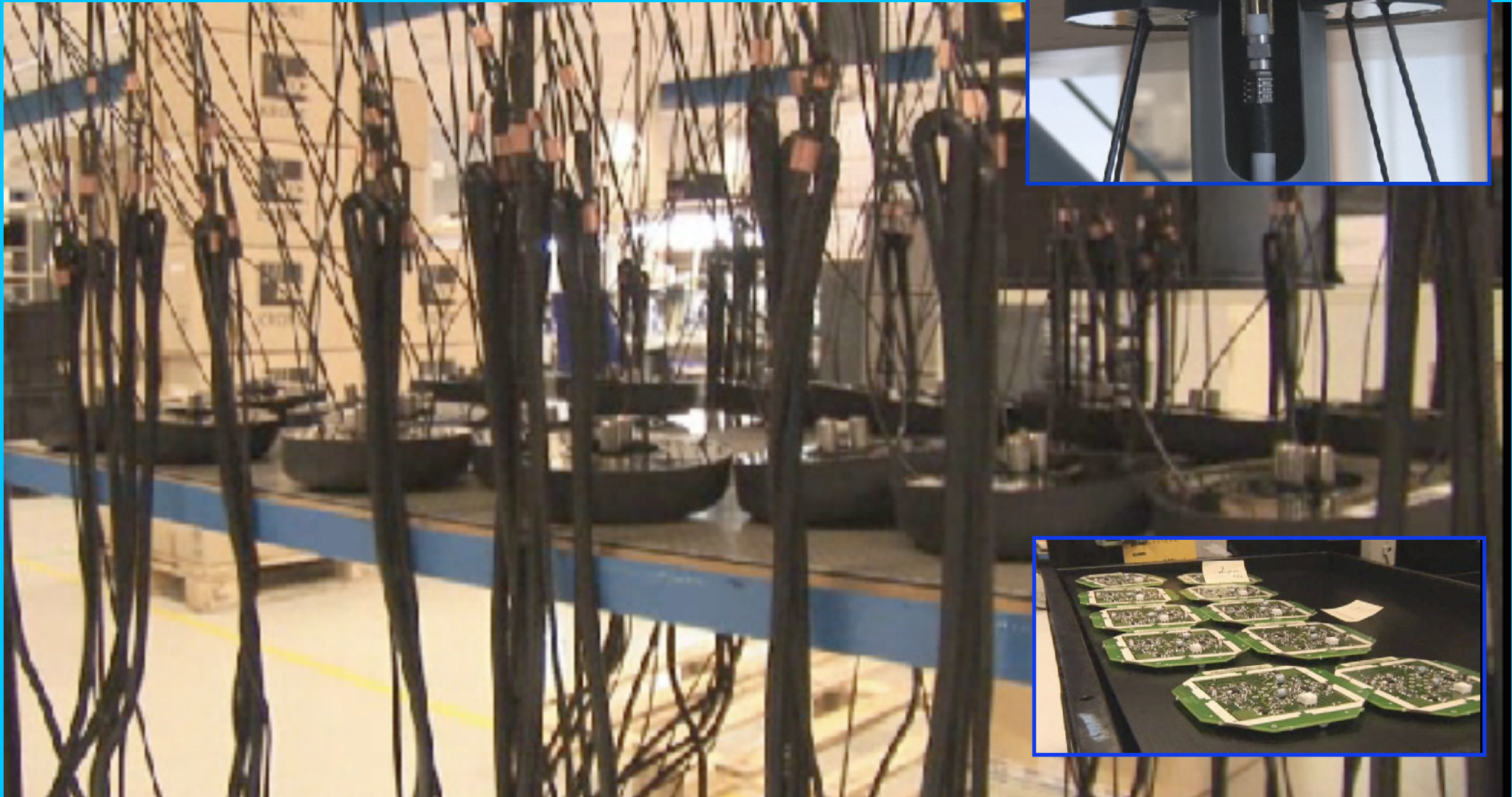


14-06-2009

CS302 - the first station!

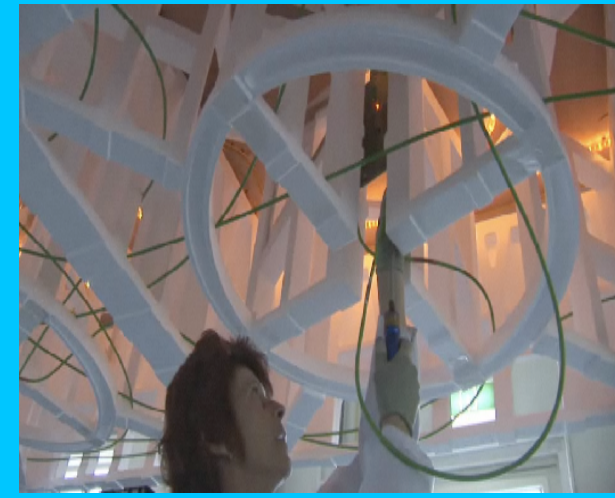
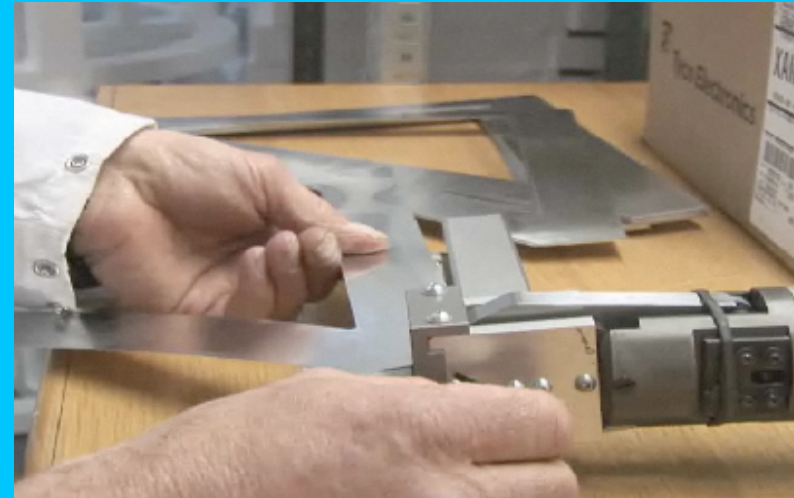


LBA's under construction at Neways BV:



CS302 - the first station!

HBAs under construction at AutoNational:



CS302 - the first station!

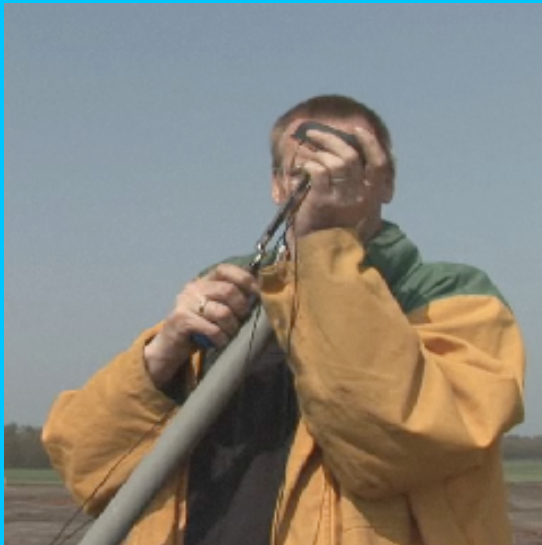
ASTRON

HBAs on route to CS302:



CS302 - the first station!

Deployment of LBAs:



nds

(O)

CS302 - the first station!

And before you know it, a sea of LBAs:



CS302 - the first station!

HBA deployment is a bit more tricky.....

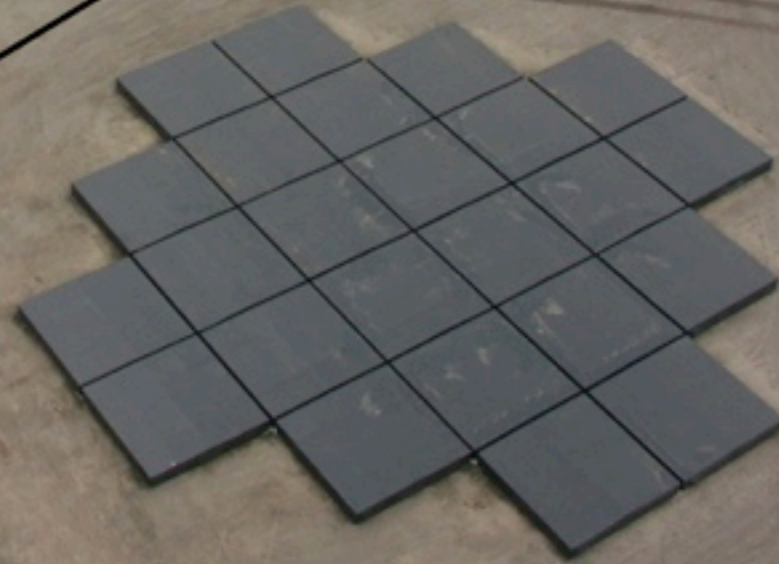
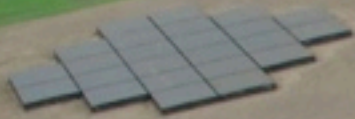


CS302 - the first station!

And before you know it, a sea of HBAs too:

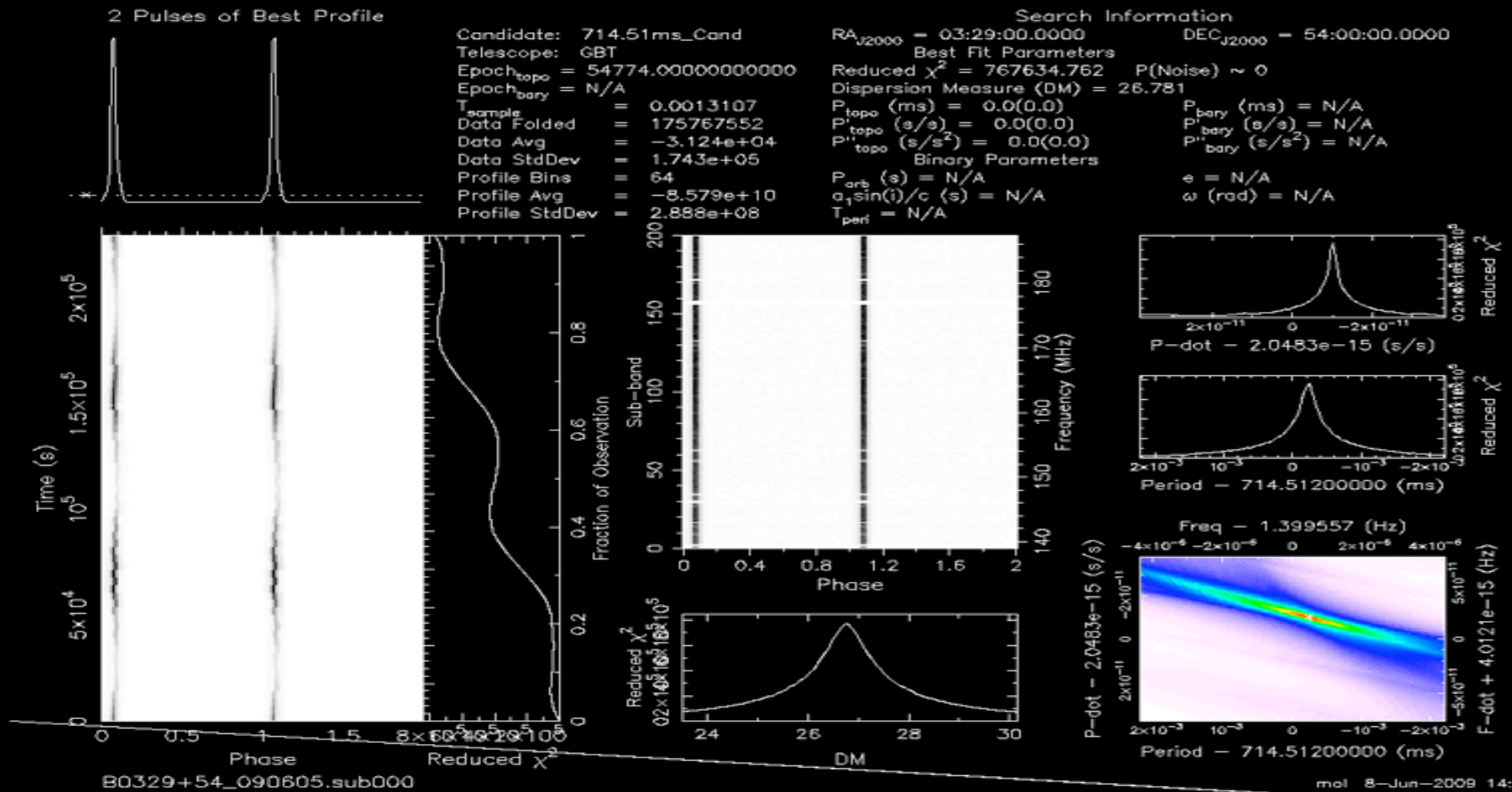


First LOFAR station complete - April 2009



First light on CS302

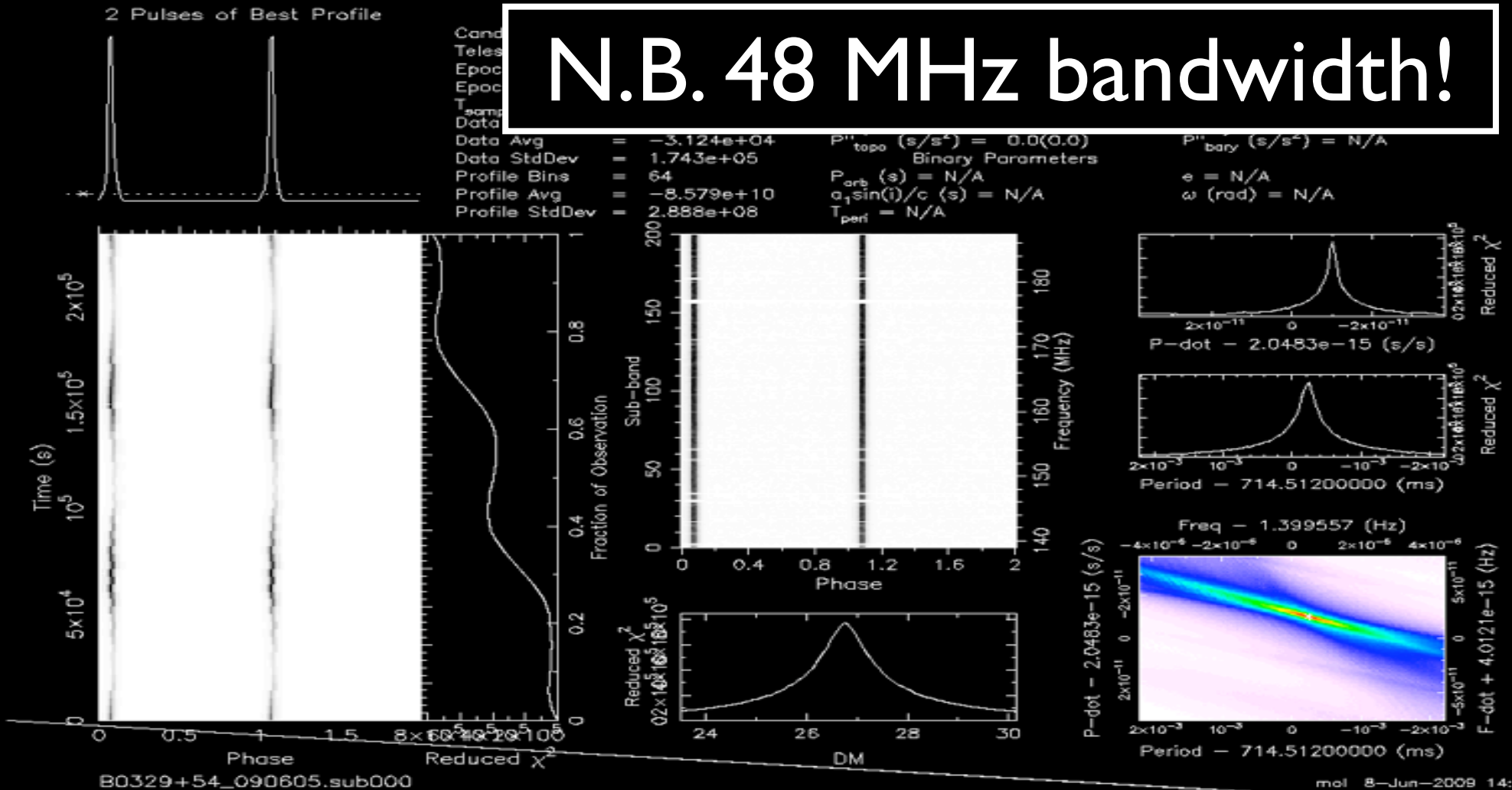
Pulsar observations with CS302 (courtesy Jason Hessel):



First light on CS302

Pulsar observations with CS302 (courtesy Jason Hessel):

N.B. 48 MHz bandwidth!



Currently:

- 3 stations complete (CS302, RS307, RS503)
- 2 stations partially complete (RS106, CS301)
- Next in line: CS30, RS208, RS306

Expectation:

- 10 stations complete mid-July 2009
- 20 stations end of the year (weather dependent)
- X European stations complete

Rollout schedule (cont)



LOFAR Int. Station Tautenburg



Rollout schedule (cont)

Superterp - ground is still settling.....



Rollout schedule (cont)

Superterp - still settling...

360 metres across
- 6 stations



ASTRON owns 400 ha - will become nature reserve in cooperation with local authorities

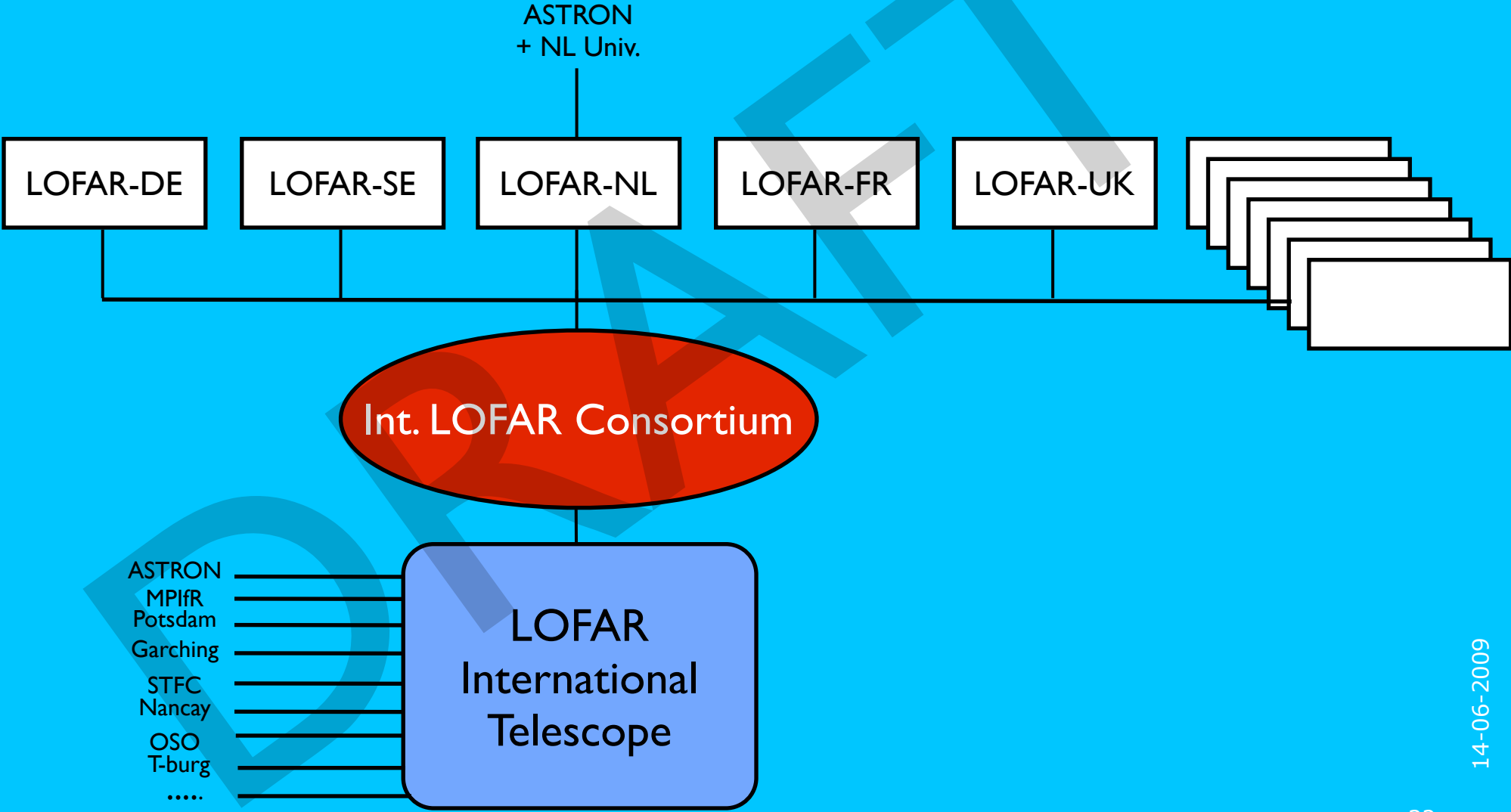
Rollout schedule (cont)

Superterp:

- first cables in the ground (fibre)
- deployment of station to begin mid-August



Operating LOFAR - overall governance structure



ASTRON is part of the Netherlands Organisation for Scientific Research (NWO)

Observing time allocation:

- national contributions will be rewarded with reserved access
- National consortia will distribute acquired rights (e.g. to KSPs)
- international contributions will be fully realised
- projects (e.g. KSPs) may obtain (multiple) national sponsors
- Independent Programme Committee (PC) will review all projects (advice to Nat. Consortia; binding for Open Time).

- There will be Open Time!
- Open Time will be open to all, including KSPs
- *Minimum* open time set by RadioNet FP7 TNA commitment:
 - 2009 - 46 hours
 - 2010 - 121 hours
 - 2011 - 224 hours
- Review of future Open Time fraction in 2010/11.

LOFAR Announcement of Opportunities for Early Access:

Participation in Commissioning & Scoping Out Reserved Access

Submission Deadline 30 September 2009

The novel character of LOFAR requires a careful preparation and organisation of the science programme. Opportunities for two steps are now announced:

1. *Experienced radio astronomers are invited to participate in the coordinated astronomical commissioning period. More information can be found [here](#).*
2. *All science groups affiliated with national consortia participating in LOFAR are invited to specify their science goals and observing resources for which they aim to use the reserved access shares, in the years following commissioning. More information can be found [here](#).*

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LOFAR

Open to *expert* individuals and teams (e.g. KSPs).
Builds on current “PSR/transient busy weeks”.

Modest sized-projects (\ll 100 hrs), *shared risk!*

Projects: KSP pilots/preparations, exceptional science targets, technical tests - modes, s/w, etc.

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Goal - census of potential projects/proposals that will be eligible for reserved obs time via national consortia.

Produces inventory: processing/storage/archive requirements, project scope and duplicity, over-subscription.

Proposals will be reviewed by PC - feedback to projects will be useful for first full call (2010).

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