

Westerbork Observing

Experience based on 50 and 21 cm continuum proposals + 3 weeks in Leiden
May not be typical, but told if anything we got done rather quickly.
No knowledge of line systems — see Allen et al, A+A, 31, 71 (1974)
and/or write RON HARTEN, Leiden

Overall — A well-documented, easy-to-use but inefficient system overladen with bureaucracy by N.American standards.

Very strong emphasis on full synthesis when it comes to software.

Presume U don't want review of system —

Outline of telescope & Rx specs HOGBOM + BROUW, A+A., 33, 289 (1974)
reduction setup VAN SOMEREN GRÉVE, A+A. Suppl. 15, 343 (1974)
Black Book available from Leiden, write to vol. Miles, or your friend there.

WHAT IS A PROPOSAL & HOW TO MAKE IT

Proposals go to Program Committee appointed by Netherlands Foundation for R.A., members from major Dutch astronomical institutes. Currently proposals should be sent to Ron Ekers, Kapteyn Laboratory, Groningen, or submitted via your friends in Holland to their local rep. Submit at any time, considered and voted ~ 2-monthly meetings. Do not need Dutch colleague (but note re reductions).

Proposal should include technical data:

0-9	144 ^m	Rx — line/cont
A, B	move on 300 ^m	Phase Center
Max spacing	OB 1602 ^m	Spacings 9A (36 ^m shortest, 9B = 9A + 72 ^m)
		HA begin, HA end
		Size (arc min) in α, δ] if known
		Total Flux
		Any special calibrations?

Regular (Dutch - European) users sometimes get away with just this, but scientific justification similar to first-time A.R.O., or NRAO proposal does no harm. V. important for non-European users to say how reductions will be done, to see how much burden might fall on in-house personnel.

In general 1×12^h fairly easy to get on any object not already observed. ^{More than 2×12^h is hard to get.} There is non-confidential file of observations already made available at Reduction Group in Leiden, but proposals are confidential.

Once proposal is accepted and rated, you're in hands of Westerbork scheduling system. If proposal overlaps another you will be told to get together.

OBSERVING

12 Telescopes — λ 's go up for ~ 3 months. λ priorities set by programming committee, in light of # and waiting time of proposals. Hi-priority obs. on one interferometer config. done before move to next, so obs. involving more than 1×12^h may be months apart. In general people do not go to Westerbork while the obs. are in progress. Detailed Westerbork scheduling done by site manager and observers not usually informed. Serious malfunctions, obvious on-site, or interference \rightarrow automatic rescheduling.

(A, ϕ)
Cal is usually one or two ~ 10 -min observations of unres. sources between 12^h scans. Tendency to underdo cal. in favour of observing. If wanting good positions (better than ~ 2 arc sec) or particular attention to antenna pointing (e.g. strong confusing source), should specify requirements in proposal.

REDUCTION-CALS

A, ϕ cal, pol? cal, clock etc etc done by Reduction Group in Leiden who won't let astronomers near data until they are satisfied with it. They may request reobservation before astronomer even advised that observing has been attempted.

Reductions.

Maps must be made in Leiden by Reduction Group.

All maps made go into N.F.R.A. archive and become common property after decent time (~ year).

If you want to do interferometry (few HA ants) suggest you get your (A, ϕ) data on tape and reduce it yourself from there, because stuff thru the Reduction Group is 100% oriented to needs of full synthesis.

Red. Group in Leiden will mail you a tape and documentation if you copy tape and send it back.

If doing synthesis, depends on how crowded your field is. Any 50cm field ($\sim 3^\circ$ square) will be crowded. You will need to do subtractions of confusing sources' getting rid of, etc. and must go to Leiden, or work through reduction group, to do this.

Few 6cm fields would need this.

21cm. Depends.

Suppose 150cm. You will want to:-

- EDIT ^{Delete, weight, etc.} A, ϕ data (interference)
- MAP/COMBINE
- SEARCH \rightarrow confusing sources
- SUBTRACT
- REMAP with subtractions, etc.
- CLEAN
- RESTORE, FIT

HORROR STORY:-

Typically takes

!!
2 or 3 months if done through Reduction Group.

Red. Group

At Leiden, Huygens Lab. Personnel from N.F.R.A. and Stenewacht.

You give them control cards for reduction programs. Documentation there is good.

They generate JCL, assign tapes, etc and book-keep into the N.F.R.A. archives. Submit to Leiden U. computer, once daily. Turn-around ~ 2 days for small jobs, ~ 4 days for maps.

This is a disaster if you are working on one field and have limited time in Leiden.

Recommend - (only semi-legal) - to beat the System (assuming U want to)

1. Get your own job cards and learn the Leiden style JCL. Then can submit your own jobs. ^{Reduction Group does not encourage this and need help of "underground", e.g. HARTEN, STROM.} Can turn around in few minutes, also late-night sometimes. Can get 3 jobs turned around/day if you submit your own decks, tapes, for jobs otherwise ~ 2 days. Also can combine Litman program, e.g. FINDKIN + RESTORE + CONTOUR. Red Group → 3 jobs!!
2. Use the interactive system developed by Ron Herter for the Leiden hospital's 1800, as much as possible, or take tapes to Groningen. Can contour, plot, clean, savefit. Needs its own input tape, must make that on ~~IBM~~ Leiden U. big machine.
→ what file red. parameters needed for ~~analysis~~ analysis on main computer.
3. Ask for priority for map-making jobs from Red. Group. Van Someren Grève, Spoelstra.
4. Don't even go until your first tapes have been made!

Manager

A colleague or leader may help. A colleague or Groniger would enable you to map at L, and interactively reduce at G. Leiden interactive system is greatly underutilised: can only work with par fields, needs special tape, & is ~1 mile from Huygens Lab. ∴ not fully debugged.

Plan to go to Holland for ~ 3 weeks to reduce a lower-freq. map. At L they don't work the computer on weekends or on holidays. Winter or June prob. best times. Make sure first maps are before U go.

May is full of holidays & July/Aug everybody is closing the machine looking for conference work.

Could do several maps at same time. You'll have spare time while waiting for turnaround on L. by machine.

Stay at old downtown. Frugal apartment for 85¢ Cad in a night, near old city & the good Indonesia restaurants. Reserve ahead, via a friend or Leiden probably.