ASTRON

and the Universities

Thijs van der Hulst
Kapteyn Astronomical Institute
University of Groningen

Timelines WNB & JMH

1940	Birth year WNB	
1948		Birth year JMH
1971	Thesis WNB: *WSRT calibration*	
1973	WNB to SRZM	overlap: WNB member of JMH's thesis committee
1977		Thesis JMH
1982		JMH employed at SRZM
1992	WNB leaves for CSIRO/ATNF Sydney	
2004	WNB returns via MC Reintegration grant to Groningen (and Dwingeloo) as professor in *'Radio Synthesis Techniques and Signal Processing'*	
2017	emeritus and office mate	almost emeritus and office mate

astro.rug.nl

Wim Brouw

Wim Brouw

Prof Dr W.N. Brouw

I am based at the Kapteyn Astronomical Institute of Groningen University, and work part of the week.
I will normally be at the Kapteyn Institute on Mondays or Fridays and at ASTRON on Tuesdays. On Thursdays I am mostly at the WSRT.
Details on my Calendar below.

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Kapteyn Astronomical Institute		**ASTRON**	
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About Wim Brouw

Citation from David Baneke's
'de ONTDEKKERS van de HEMEL

or: *what others say about you*

– de ingenieurs moesten een deel van de door Philips geleverde software herschrijven. De software om de data te verwerken werd ontwikkeld onder leiding van Wim Brouw, een van de eerste astronomen die zich al tijdens zijn studie had verdiept in software. In mijn gesprekken met astronomen werd hij vaak genoemd als iemand die buiten de gemeenschap misschien weinig bekend werd, maar die achter de schermen bijzonder belangrijk was. Zijn werk was cruciaal voor het succes van de Westerborktelescoop in de eerste jaren. Later zou hij ook voor andere instrumenten belangrijke software ontwikkelen.

The Landscape in the late 70's

University Astronomy Departments in:

- Leiden
- Groningen
- Amsterdam
- Utrecht

Stichting Radio Straling van Zon en Melkweg (SRZM) under ZWO
Institute for development of radio astronomical facilities
in Leiden and Dwingeloo

Commissie Geofysica en Ruimte Onderzoek (GROC) under KNAW
Laboratorium voor Ruimte Onderzoek (LRO) in Utrecht and
smaller Ruimte Onderzoek groups in Groningen and Leiden

The Landscape in the late 70's

Sectie Sterrenkunde van de Academische Raad

Dagelijks Bestuur: Nederlands Comite Astronomie (NCA)

Six members, of which four from the university institutes
plus advisory members from GROC and SRZM

Tasks: - guidance and development of a national research policy
- contacts with foreign and international organisations (IAU)

'Uitgebreid NCA' (17 members, since 1976): to evaluate
research proposals and advice ZWO regarding project subsidies

Formation of the 'Landelijke Werkgemeenschappen' in 1977:
Sun and Stars, ISM and Galaxies

Changes in 1979

ZWO and the NCA decided in 1978 to establish ASTRON,
the 'Stichting Astronomisch Onderzoek in Nederland'

ASTRON's charter:

- development of long term strategy for Dutch astronomy
- allocation of funds to research projects
- advise ZWO about SRZM's budget and planning
- advise KNAW about future of GROC

The first annual report also details the relation to ZWO's other astronomy foundation, SRZM

Changes in 1979

interesting reading from the ASTRON Annual Report 1979

2.2. Relatie ASTRON-RZM

De relatie ASTRON-RZM was spoedig na deze eerste bestuursvergadering onderwerp van discussie. In verband met een vraag van het bestuur van ZWO (brief van de ZWO bestuurssecretaris van 24 januari 1979) aan het UNCA besprak het voorlopige ASTRON bestuur deze zaak in zijn vergadering van 31 januari 1979 hetgeen leidde tot het antwoord van het UNCA aan ZWO van 15 maart 1979. Het daarin gestelde komt in het kort op het volgende neer:

- de Stichting RZM heeft een dienstverlenende taak op waarnemingsgebied ten behoeve van de universitaire instellingen voor astronomisch onderzoek; de Stichting ASTRON heeft tot doel de bevordering van onderzoekbeleid en van kwaliteit van onderzoek, mede door de toekenning van subsidies voor onderzoekprojecten. In dit kader komt de relatie tussen de beide Stichtingen tot uiting bij:
- beoordeling van, en advisering aan ZWO over de lange termijn (5-jaren) plannen van RZM
- advisering van ZWO t.a.v. de jaarlijkse RZM begroting voor het "Gewoon Subsidie"
- advisering door RZM aan ASTRON t.a.v. bij laatstgenoemde organisatie ingediende radio-astronomische waarneemprogramma's
- commentaar van RZM op een door ASTRON te ontwikkelen onderzoekbeleidsplan op lange termijn.

De inhoud van dit advies werd ter kennis gebracht van de universitaire Colleges van Bestuur en hun erbij betrokken diensten.

SRZM's activities

- operation of WSRT including calibration and imaging of the data
  (*first in Leiden, then also in Dwingeloo and Groningen*)
- operation of the Dwingeloo 25m telescope
- development of new instrumentation for the WSRT
- development of new techniques for radio astronomy in general
  (*VLBI, cooled receivers, mm-receivers, digital correlators, phased array systems, CCD - controllers*)

Most staff at SRZM were engineers and technicians, few astronomers

In the late 70's a few astronomers were appointed to liaise with the engineers and the astronomers at the university institutes.

In the 80's more postdocs were hired who added to this liaison capability

New ASTRON / New NFRA?

In 1988:

- ASTRON and SRZM have worked well together
- University budgets shrink
- UK/NL collaboration commitments largely borne by SRZM
- ZWO made a transition to NWO

The ASTRON and SRZM Boards together with the ZWO/NWO general Board discussed a merger of both organisations into one foundation named ASTRON in Dutch and NFRA in English.

This new ASTRON started formally January 1, 1989.

The national coordinating role remained with the NCA

ASTRON in transition

In 1990 plans were made to reorganise the management structure

reasons: vague management structure, too high pressure on personnel, lack of focus/selection, dwindling support from the astronomical community for some projects, …

New structure in place in 1991, first General Director H.R. Butcher

Projects got a project scientist from a university institute or ASTRON and a project manager from ASTRON

Projects at the time: PUMA, Newstar, MFFE and work for UK/NL

Emerging Projects: DZB, IVC, PHAROS/FARADAY, THEA, ……
LOFAR, SKA

Examples of collaborative projects

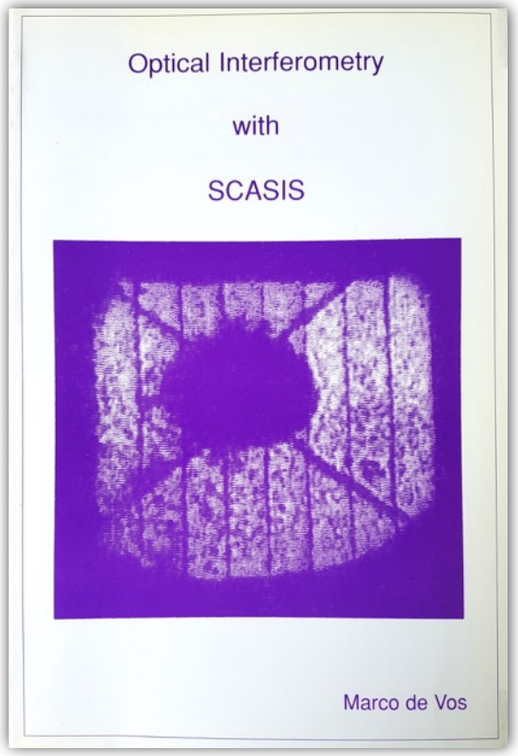
The 80 channel spectrometer →

converting 4 polarisations and 20 baselines into
a 8 channel and 10 baselines spectral line engine

> The Synthesis Radio Telescope at Westerbork: the 80-channel Filter Spectrometer
>
> Ronald J. Allen
> Kapteyn Astronomical Institute, University of Groningen
>
> Johan P. Hamaker and Kelvin J. Wellington
> Netherlands Foundation for Radio Astronomy
>
> *A&A, 31, 71, 1974*

PUMA →

> PUMA the First Dutch Pulsar Machine
>
> Voûte, J. L. L. ; van Haren, P.
>
> Neutron Stars and Pulsars : Thirty Years after the Discovery : Proceedings of the International Conference on Neutron Stars and Pulsars held on November 17-20, 1997, at Tachikawa Hall, Rikkyo University, Tokyo, Japan. Edited by N. Shibazaki [et al.]. Tokyo, Japan : Universal Academy Press, c1998. (Frontiers science series ; no. 24)., p.251



SCASIS →

seeing cell aperture synthesis interference spectrograph

SCUBA DREAM →

> DREAM: Dutch real-time acquisition mode for SCUBA
>
> *Rudolf S. Le Poole ; H. W. van Someren Greve*
> [+] Author Affiliations
>
> *Proc. SPIE* 3357, Advanced Technology MMW, Radio, and Terahertz Telescopes, 638 (July 31, 1998); doi:10.1117/12.317420

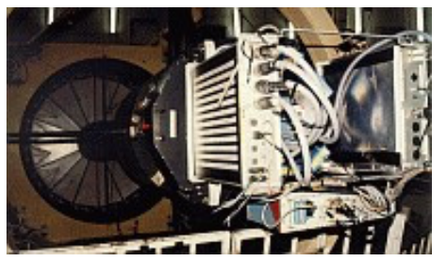
Concentrating Optical Instrumentation

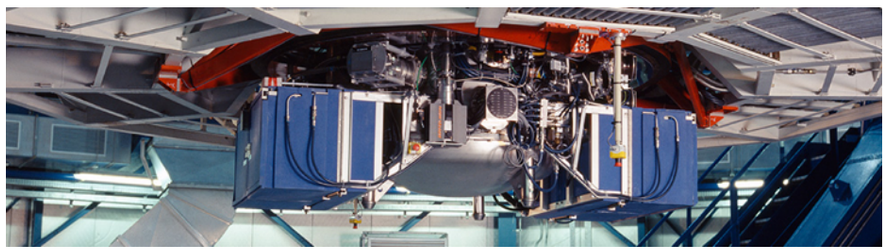
optical instrumentation efforts, important for the
UK/NL collaboration and ESO were too scattered
with workshops in Utrecht, Leiden, Roden

in 1981 the Leiden and Groningen efforts were brought
together to form the Kapteyn Sterrenwacht Werkgroep (KSW)
at the Kapteyn Sterrenwacht in Roden.

in 1995 the Kapteyn Sterrenwacht Werkgroep (KSW) moved to
and got integrated into ASTRON. Both the ASTRON workshop
and the KSW had already been collaborating intensively.

Projects: WHT: UES and HHS, INT: WFC, VLT: VISIR





Emergence of NOVA

In 1992 the Ministry initiated the formation of 'Onderzoekscholen' and Dutch astronomy proposed and got formal KNAW approval for the Nederlandse Onderzoekschool Voor Astronomie, NOVA

In 1998 the Ministry started the 'Dieptestrategie' and provided funding for the best 'Onderzoekscholen' and NOVA successfully acquired the predicate 'Toponderzoekschool' and was the highest ranked 'Onderzoekschool' to receive funding. This particular funding line continues to date and will conclude in 2024.

NOVA positioned itself as the *home base* for ESO in terms of instrumentation efforts.

Into the next millennium

1999: 50th anniversary of NFRA
reorganisation of NWO (N.B. again in 2016)

- project subsidies will be administered bij NWO's Exact Sciences council
- ASTRON (and SRON) directly under the NWO General Board
- all UK/NL responsibility will rest with NWO's Exact Sciences council

So ***at the turn of the century*** the astronomy organisations are:

ASTRON, SRON, NOVA, NWO Exact Sciences

with the NCA as coordinating body

ASTRON now and in the future

development of Aperture Array technology leads to new challenging projects: **LOFAR**, **Apertif**, eventually **SKA**

in 2007 NWO forced ASTRON to focus on radio astronomy

- NOVA takes over the entire optical instrumentation group
- the scientific staff at ASTRON expands
- many more joint PhD projects than ever before

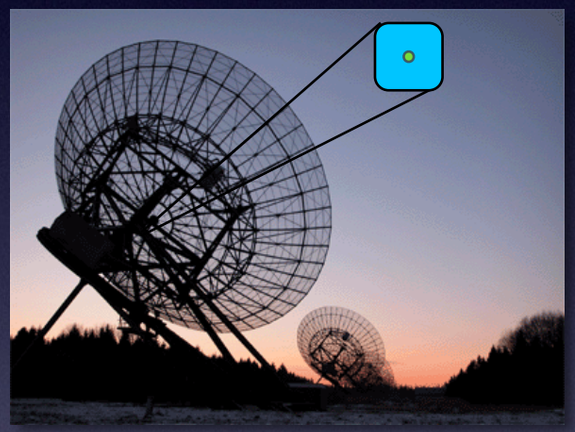
limited funding forces the users to contribute to developing the tools for data processing: LOFAR, Apertif

and to find funding for additional hardware:
AARTFAAC for LOFAR and ARTS for Apertif

This appears to be the new situation that ASTRON and the Universities are now slowly getting used to.

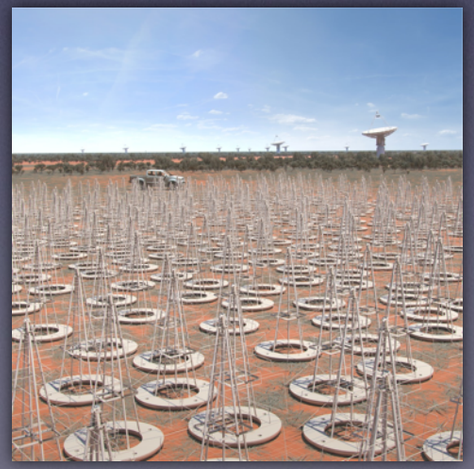
Radio Astronomy: new windows on the universe and a complex data challenge

WSRT + APERTIF



LOFAR

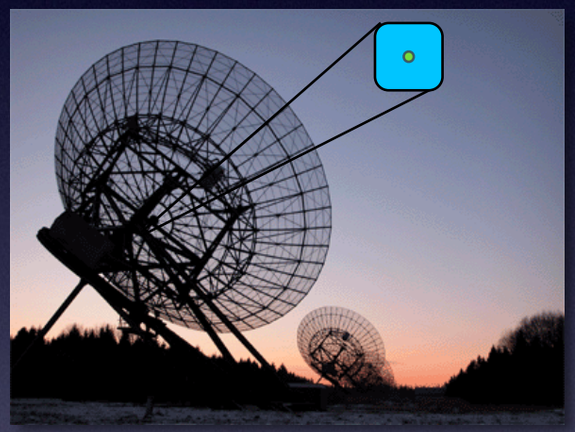
Square Kilometre Array



Let's continue to do this together

Radio Astronomy: new windows on the universe and a complex data challenge

WSRT + APERTIF



LOFAR

Square Kilometre Array