Solar Physics in The Netherlands, 2000 – 2001

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Solar physics research in the Netherlands is carried out at Nijmegen, Utrecht, Nieuwegein, and Noordwijk.

Jan Kuijpers left Utrecht University per January 1, 2001 to take up a full-time professorship in astrophysics at Nijmegen University, where he had been part-time professor before. His move weakened solar physics at Utrecht, but is likely to strengthen it in The Netherlands generally since solar physics is now carried out at two universities. His solar physics research emphasizes prominence theory. He is presently President of the joint Solar Physics Division of the Europan Physical and Astronomical Societies.

At the Sterrekundig Instituut of Utrecht University, Rob Rutten continued research in chromospheric oscillations with graduate student Thijs Krijger using TRACE near-UV image sequences, and started on analysing DOT observations with students. ESMN postdoc Pit Sütterlin also worked on penumbral fine structure in DOT observations, also with Michal Sobotka at Ondrejov.

Rob Hammerschlag's Dutch Open Telescope (DOT) project progressed very well during 2000–2001, in particular with the respect to the speckle reconstruction started at the DOT by Sütterlin. Its initial success made the Astronomy Picture of the Day (Februray 23, 2000, actually a movie) and led to the definition and realization of a sophisticated large-volume multi-camera speckle acquisition system. Details are given at the DOT website (dot.astro.uu.nl) which also supplies superb quick-look DOT movies. The DOT has an open data policy; any researcher is welcome to any DOT data.

In the meantime, Hammerschlag and Felix Bettonvil have designed multi-wavelength optics to feed the multi-camera system with different beams including Ca II K and Halpha. The first synchronous two-channel data were obtained in October 2001. A special campaign in the summer of 2000 used about the last light of the SVST (to become the NSST, in the building from which the DOT is operated) to test the Dopplergram capabilities of the Ba II 4554 filter built by Skomorovsky and colleagues at Irkutsk in the 1970's, at the instigation of Ludmany Andrasz (Debrecen). The results were tantalizing; the filter will be accommodated in the DOT eventually.

A prestigious DOT Evaluation Committe consisting of Oskar von der Lühe (KIS, chair), Steve Keil (NSO) and René Rutten (ING) came to Utrecht in the spring of 2001 to evaluate DOT progress over the preceding three years. Their very positive report and recommendations led to renewed DOT funding for the coming three years, effectively making Utrecht observational solar physics survive.

At the *Utrecht Space Research Institute*, a non-university institute, partial interests in solar physics were retained by Peter Hoyng (dynamo theory) and by Rolf Mewe (who retired officially but remains active) and Jelle Kaastra (plasma diagnostics).

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AAt the *FOM Institute for Plasmaphysics* at Nieuwegein (also non-university) Rony Keppens leads the Numerical Plasma Dynamics group since January 1 2001, in close collaboration with Prof. Hans Goedbloed. In the course of 2000–2001 the group included postdocs Sander Beliën, Bart van der Holst and Fabien Casse. The research concentrates on linear and nonlinear magnetohydrodynamic (MHD) studies of laboratory and astrophysical plasmas. The central theme is the role of flows in magnetically controlled plasmas.

Two state-of-the-art numerical programs have been completed, respectively for the computation of stationary equilibria (called FINESSE) and of the spectrum and eigenfunctions of waves and instabilities (called PHOENIX). FINESSE computes the equilibrium of an axisymmetric plasma with both toroidal and poloidal flows in three different flow regimes (sub-slow, sub-Alfvénic, and super-Alfvénic). PHOENIX computes the full ideal and resistive spectrum for these equilibria by means of the new parallel Jacobi-Davidson algorithm. Furthermore, the Versatile Advection Code (VAC, see http://www.phys.uu.nl/ toth/) is a general-purpose software package particularly suited for multidimensional hydro- and magnetohydrodynamic simulations. As a promising extension to the software, a fully automated Adaptive Mesh Refinement (AMR) scheme is now incorporated in order to accurately and efficiently capture all fine-scale dynamics. Furthe information and examples at http://www.rijnh.nl/n3/n2/.

At *ESTEC* (Noordwijk) there is an international (and rather transient) ESA solar physics group that is involved, among other projects, in SOHO and Ulysses. At the end of 2001 the group at ESTEC consisted of Thierry Appourchaux (helioseismology, SOHO), David Berghmans (research fellow, space weather, CMEs), Bernard Foing (Head of the Research Support Division; solar and stellar spectroscopy), Richard Marsden (Ulysses), Eoghan O'Shea (ESMN fellow; transition region dynamics, sunspot oscillations), Trevor Sanderson (Ulysses), and Peter Wenzel (Head of the Solar and Solar-Terrestrial Missions Division; Ulysses).

Finally, the *SOHO Project Scientist Team* consisting of Paal Brekke (SOHO Deputy Project Scientist; UV/EUV spectroscopy; transition region dynamics), Bernhard Fleck (SOHO Project Scientist; chromospheric dynamics), Stein Haugan (SOHO Science Data Coordinator; data analysis), Scott McIntosh (ESA external research fellow; UV spectroscopy, modelling), and Luis Sanchez (SOHO Science Data Coordinator; helioseismology) resided at Goddard Space Flight Center in Greenbelt, Maryland.