

A600 is at present dedicated to the control of the AOS spectrometers. Instruments and sensors are interfaced to the computers via the industry standard bus systems GPIB and CAMAC.

Two popular on-line data reduction packages designed for radio astronomy are supported. These are POPS (People Oriented Parsing Service), a system developed in the USA, and Toolbox, a system developed in Germany. Users may also write their data to tape using the well-known FITS format for reduction by other popular off-line systems.

Operations

The operation of SEST on La Silla is in the hands of a team comprising:

Scientist in Charge:

Lars E.B. Johansson

Microwave Engineers:

Magne Hagstrom, Nick Whyborn;

Software Scientists:

David Murphy, Michael Olberg

This dedicated group has been heavily involved with receiver and software development for more than a year. Two further persons will soon be added to this team.

Following its completion under the supervision of Dietmar Plathner, the new telescope was handed over to the team at La Silla on March 13, 1987 and "first light" was obtained on March 24. Commissioning is now under way, and series of tests designed to determine the pointing and homology characteristics and the receiver performance, and to streamline the control system, are in progress. When these are complete, experienced millimetre astronomers will be invited to try out the system. SEST should become generally available in early 1988 after the 230 GHz receiver has been commissioned. Proposals will be accepted for the ESO October deadline. Sweden and ESO will handle their respective proposals through separate programme committees and time will be allocated to the two parties on a 50-50 basis.

Scientific Programme

The scientific programme for SEST depends, of course, on the interests of the user community. A full discussion of the potential programmes for the telescope took place during the Aspenäs workshop (ESO Conference and Workshop Proceedings No. 22, 1985). While the millimetre and submillimetre spectral region is usually considered the province of molecular line astronomy and cosmochemistry, we saw a great deal of interest in continuum studies both of interstellar dust, active galactic nuclei

Proposals for SEST Observations

Routine observations using SEST will be allocated on a six-month basis, in accordance with the standard ESO observing schedule. They are expected to commence with period 41, starting 1 April 1988, for which the proposal deadline is 15 October 1987.

In the meantime, there will be opportunities for limited observations using the first receiver (85-117 GHz) and AOS (50 kHz resolution) starting in August or September, during the testing and calibration phase. These opportunities are necessarily restricted to astronomers with considerable experience in millimetre wave observations, who are willing to work with an evolving system and contribute to its development. Proposals for this period should be submitted as soon as possible to the Visiting Astronomers Office in Garching.

and quasars, and the cosmic background radiation since the Sunyaev-Zeldovich decrement changes sign between 2 mm and 800 microns wavelength.

In the field of molecular spectroscopy the southern sky has great potential because the southern Milky Way contains a plethora of important dark clouds and HII regions, many with unusual features. Probably one of the most important although poorly understood discoveries of molecular line astronomy is the fact that so many protostars in the Galaxy go through the stage of bipolar outflow. The southern sky is rich in optical signposts of bipolar flows, such as Herbig-Haro objects, and this points to a feast of new observational data. Their observations in the new wavelength range and with the higher resolution provided by SEST should help us understand this unexpected phenomenon.

At the other end of the evolutionary scale, the study of mass loss from evolved stars, Mira variables and red giants is an exciting prospect, particularly in view of the host of IRAS objects now waiting to be observed at millimetre wavelengths. One of the first observations with SEST provided the detection of a new 86 GHz SiO maser in a Mira variable, R Doradus (Figure 3).

In the past few years we have seen much interesting work on the carbon monoxide distribution and molecular cloud dynamics in nearby galaxies. Again IRAS has been an inspiration and we now find that extragalactic CO is detectable in galaxies with recessional velocities greater than $8,000 \text{ km s}^{-1}$. The southern sky is rich in active galaxies and their observation will enhance the statistical data base needed to relate star formation rates to molecular emission, IR and continuum radio fluxes.

Finally, solar system objects will not be neglected with SEST. In fact, it may be possible to observe comet Wilson already next month. Observations of

planetary atmospheres and the continuum emission from planets and asteroids at submillimetre wavelengths will be of great interest.

We look forward to these exciting discoveries, which have been made possible by the dedicated efforts of the many people involved.

List of ESO Preprints

491. B. Barbanis: Irregular Periodic Orbits. *Celestial Mechanics*. March 1987.
492. L. Milano, M. Rigutti, G. Russo and A. Vittone: Some Observed Peculiarities of the Triple System V 701 Cen. *Astronomy and Astrophysics*. April 1987.
493. S. Cristiani: Observation of the HII Galaxy Giving Origin to the $Z = 0.3930$ Absorption System of the QSO 1209+107. *Astronomy and Astrophysics Letters*. March 1987.
494. L. Koch-Miramond and M. Aurière: X-Ray and UV Observations of Omega Centauri with EXOSAT. *Astronomy and Astrophysics*. March 1987.
495. S. Cristiani et al.: Radial Velocities of Galaxies in the Cluster Klemola 22 from Observations with Optopus, the ESO Multiple Object Spectroscopic Facility. *Astronomy and Astrophysics*. April 1987.
496. E. Giraud: Malmquist Bias in the Determination of the Distance to the Hercules Supercluster. *Astronomy and Astrophysics*. April 1987.
497. G. Garay: The Orion Radio Zoo: Pigs, Deers and Foxes. Invited talk given at the V. I.A.U. Regional Latin-American Meeting, Merido, Mexico (October 6-10, 1986). April 1987.
498. B. Binggeli, G.A. Tammann and A. Sandage: Studies of the Virgo Cluster. VI. Morphological and Kinematical Structure of the Virgo Cluster. *Astronomical Journal*. April 1987.
499. T. Le Bertre: Optical and Infrared Observations of Two Type-II OH/IR Sources. *Astronomy and Astrophysics*. April 1987.
500. Supernova 1987 A in the LMC. Astrometry (R.M. West et al.), Photometry (S. Cristiani et al.), Polarimetry (H.E.