by large clouds move upwards and become visible when they penetrate the uppermost, hazy layers. They resemble the towering cumulonimbus clouds often seen in the Earth's atmosphere. However, the lifting mechanism is not yet known; one possibility is that their upward motion is due to the release of heat by water condensation, perhaps in combination with strong updrafts from sublimating ammonia grains.

The spots become longer as the clouds are carried along by strong winds in the upper atmosphere. Eddies and whirl patterns undoubtedly develop because ot the different wind velocities at different latitudes, but due to their smaller size they are very difficult to observe from the Earth. This may imply that the spots, perhaps in particular those which have emerged more recently, are actually gigantic storm centres, just like the Giant Red Spot on Jupiter, that has now been visible for almost 400 years.

Since the Great White Spots on Saturn last much shorter, in the past cases at the most a few months, it will now be very interesting to follow the new one during some time to learn exactly how it disappears. Observations are therefore continuing at ESO as well as at other observatories.


### Acknowledgements

I'm very grateful to S. D'Odorico, who took the EMMI images, and to A. Gemmo and A. Iovino, who kindly agreed to give me some of their observing time at the 2.2-m telescope.


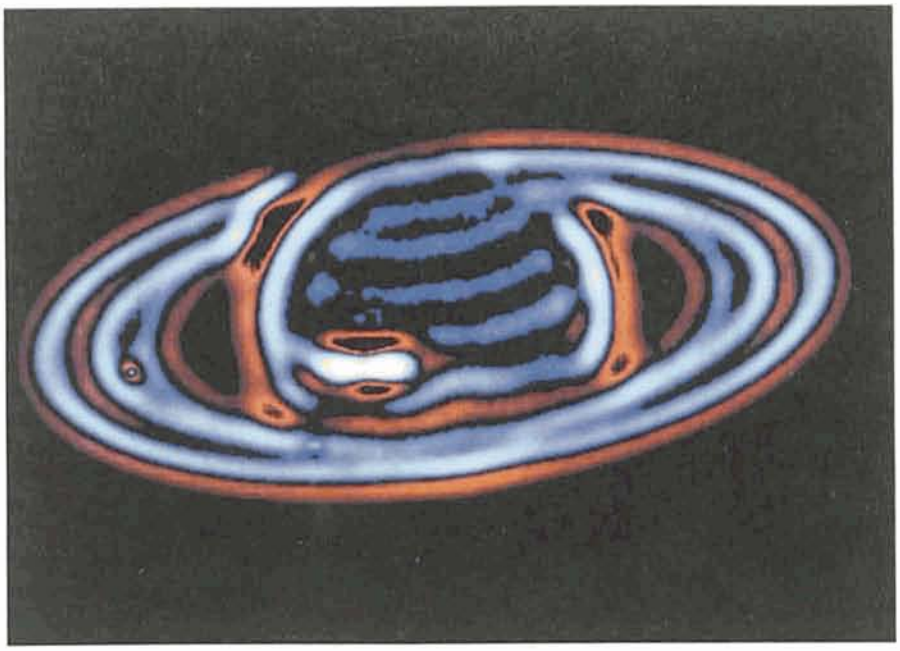

Figure 2: *This picture of Saturn and the Giant White Spot was obtained with the ESO New Technology Telescope on October 16, 1990 at UT 0 hrs 0 min. It is a 1-sec exposure through a 6-nm-wide filter, centred in the blue spectral region at 468 nm. North is approximately up and East is to the left. The seeing conditions were mediocre (~ 1.1 arcsecond), and the false-colour reproduction shown here has been subjected to computer processing by D. Baade at the ESO Headquarters, according to an advanced algorithm, developed by L. Lucy; this has resulted in a sharpening to about 0.4 arcseconds. To "flatten" the image, the original image was subtracted from the "sharpened", so that even small details become well visible. On this date the spot had a double structure, it extended to the equator and had already grown significantly in length. The various atmospheric bands are also well visible.*

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## NEWS ON ESO INSTRUMENTATION

# EMMI Through the Last Tests Before Entering Regular Use

At the end of September 1990, a new HP A900 computer dedicated to the control of instruments and to data acquisition was installed at the NTT. It is linked to the existing A900 which continues to take care of the telescope and the adaptor operation. Following this installation, the EMMI control software was further debugged and tested. The user interface was installed for the first time: it is based on a new concept and makes use of different menus and forms displayed on the RAMTEK and selected via a mouse. The overall control system performed in a reliable way but a number of improvements to make the system more robust and easier to use were suggested by the first observers and will be implemented early in 1991. Some 14 nights and days were intensively used for technical and astronomical tests and for training of the technical and astronomy staff of La Silla.

In addition to the observing modes described in the September issue of the *Messenger* (No. 61, p. 51) two new ones were successfully tested: the high-resolution echelle in the red arm (resolving power 28,000 with 1 arcsec slit) and the on-line slit punching device. The installation of the echelle requires the dismounting of the standard grating unit, an operation which takes a few hours and has to be planned in advance. The slit punching machine (PUMA3) is mounted on a x-y table in the instrument itself. Thin plates can be inserted in the different positions of the aperture wheel (up to 4 available) and slits of 7.5 × 1.2 arsec can be punched on the plates at positions measured on a direct image taken earlier with the same instrument.