bursters). Suffice to think of the role of Type Ia supernovae in the chemical evolution of galaxies and clusters of galaxies, or in providing a tool to measure the variation with cosmological time in the rate of universal expansion. For over 15 years two scenarios have been considered without being able to decide among them. In common to both is the basic mechanism: the thermonuclear explosion of a white dwarf (WD) accreting material until a critical mass is reached. But the two options diverge on the nature of the mass donor: a giant star filling its Roche lobe in the single degenerate (SD) scenario, another WD spiralling in due to gravitational wave radiation in the double degenerate (DD) scenario. Searches for DD systems have been only partly successful, being painfully slow at 4-m-class telescopes. The VLT now offers a chance to thoroughly address this problem, by checking a great number of WDs for radial velocity changes due to orbital motion. Unfortunately, the surface density of WDs is too low for exploiting the high multiplex of FLAMES (just 2 or 3 per square degree down to magnitude 20). However, WDs are all over the sky, and a snapshot survey with UVES will be ideal for filling in gaps in the night schedule when UT2/Kueyen will be used in Service Mode. At the high resolution of UVES, DD systems could be easily identified with just two short exposure spectra, with further observations allowing to determine the period. In five years, with a few minutes per WD, of order of 1000 WDs could be checked for binarity by investing just a few percent of the fraction of the UVES time that will be operated in service mode. Besides possibly finding a number of SNIa precursors, such a survey would provide unique information on the endpoints of interacting binary-star evolution, as well as a unique database of WD spectra.

Some among the stellar astronomers may have had the perception of the access to VLT data being overwhelmingly difficult. Actually, quite the opposite is going to be true: the flow of stellar data from the VLT is likely to be so high that a major fraction may not be promptly processed and exploited for shortage of astronomers who can do it. For example, it is estimated that with FLAMES absorbing some 80 nights/year for stellar studies, about 400,000 high-resolution spectra will be obtained during the first five years of operation[1]. Like all VLT data, all these spectra will become publicly available one year after the observations, allowing others than the proposing group of astronomers to refine (or even anticipate!) the scientific analysis. This will be especially interesting in the case of stellar high-spectral-resolution studies, in which the scientific result is at least as dependent on the actual modelling as it is on the quality of the original data. Rather than being a threat for stellar astronomers, the VLT offers to this component of the ESO community a great deal of opportunities. Deadline for applications for Period 65 is October 1, 1999.

[1] For comparison, note that high-resolution spectra are presently available for just a dozen stars in the Galactic bulge.

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VLT Instrumentation Renewal

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I. The Rationale

At the time of this writing, ESO, with a major contribution from its community, is embarked on the so-called first-generation VLT instrumentation plan, with eleven different instruments for as many foci of the VLT, plus four instruments for the VLTI. The first two instruments (ISAAC and FORS1) have just been put in operation, with two others (UVES and FORS2) planned to join them in about 9 months. Succeeding in this ambitious endeavour is our present first and utmost priority.

When this major effort is completed around 2003–2004, we will then be faced with the prospect of almost immediately restarting new instrumentation, as the first instruments installed will be well in the midst of their likely 10–12 years useful life.

Peering just a little bit into a crystal ball, one can see indeed at least three different rationales which will likely push towards a substantial renewal of the presently planned first instrumentation complement of the VLT, namely:

• shifts in emphasis between major astronomical fields to be addressed with the VLT, as well as within these fields,

(Continued on page 18)

Centrefold

Satellite image showing the proposed location of ALMA, the Atacama Large Millimetre Array (see article on page 7 in this issue of The Messenger). Also indicated are the town of San Pedro de Atacama, the prominent volcano Licancabour, and the Laguna Verde.

This image is a composite of three exposures in spectral bands at 1.6 µm (rendered red), 1.0 µm (green) and 0.5 µm (blue). The horizontal resolution of the false-colour image is about 30 metres. North is at the top of the photo.

The image was produced in 1998 at Cornell University (USA), by Jennifer Yu, Jeremy Darling and Riccardo Giovanelli, using the Thematic Mapper data base maintained at the Geology Department laboratory directed by Bryan Isacks, and is reproduced here with their kind permission.