

JIVE Newsletter number 2000-1

----- The JIVE Newsletter, Year 2000, Number 1 -----

This issue of the JIVE Newsletter is somewhat focused on the EVN MkIV correlator at JIVE. You'll find updates on the current state of the correlator, results of first science with the correlator and a note on the increasing number of visitors to JIVE!

NEWS NEWS NEWS NEWS NEWS NEWS

1) VISITORS TO JIVE

With the JIVE correlator coming on-line the number of visitors arriving at JIVE to analyse EVN and Global VLBI data has steadily increased over the last few months. Since October 1, 1999 over 20 PIs have visited JIVE and taken advantage of the processing facilities and local expertise. Visits by outside users affiliated with European institutes is supported via a grant from the EC but there is also more limited financial support for visitors affiliated with the EVN observatories. A steady increase in visitors is expected over the coming year - we hope to see you in Dwingeloo soon!

2) CURRENT STATUS OF THE CORRELATOR

The last half year the EVN MkIV correlator has been focusing on production of user data. In this period 8 user projects (and 4 test experiments) were processed and the data distributed to the PI's. As was to be expected, processing a range of projects revealed bugs of various species. This forced the correlator group to use at least half of the available correlator time for analysing problems and testing fixes. This in turn slowed down the development effort, which is necessary to extend the capabilities beyond the basic modes currently available. The situation was greatly improved when the JIVE operators started working evening shifts in December. The quiet evening hours proved to be very efficient for production correlation. So much in fact, that soon the support staff of the correlator became almost overloaded with experiments to prepare, clocks to search and data to check out.

We have now reached a point where there are almost no "pilot" projects left to correlate. Based on the experience with the data and the way processing has progressed, several enhancements are due. The next couple of weeks focus will shift to do an overall correlator software upgrade. This is supposed to introduce new flexibility when assigning correlator configurations, including the capability to process experiments with more than 8 stations. At the same time several logistic procedures will be polished up, to be able to run production correlation in a more automated fashion.

The correlator is currently accepting about 50% of the experiments in the EVN. A description of current capabilities can be found at

<http://www.jive.nl/jive/jive/correlator/status.html>.

3) FIRST SCIENCE WITH THE CORRELATOR

The paper which contains the first scientific result obtained with the EVN MkIV data processor at JIVE is now in press (van Langevelde, Pihlstrom, Conway, Jaffe & Schilizzi, A&A letters, February 2000). It describes the VLBI detection of atomic hydrogen absorption within 6 pc of the nucleus of the galaxy NGC 4261. The observations were made with the EVN in February 1999 and correlated at JIVE last August. Ylva Pihlstrom from Onsala was the first user to take on data reduction of JIVE data. After more or less standard calibration and mapping of the continuum, the detection and analysis of the line data was quite elaborate.

The absorption feature in this source is very weak (3.5 mJy) and could only be detected on a single baseline. However, by referencing the line data to the continuum, it was possible to unambiguously associate the absorption feature with the counter-jet at approximately 18 mas from the core. As the jets are relatively weak, the line does correspond to a considerable HI column.

NGC4261 is a famous source, mainly because the Hubble telescope showed its nucleus to be surrounded by a disk of neutral material with a size of 240 pc. The Hubble telescope also found evidence for the presence of an approximately 500 million solar mass black hole in its center. The new result shows that near the nucleus the accretion disk takes an atomic form. Recent VLBA results (Jones & Wehrle 1997) detect free-free absorption on even smaller scales. This makes NGC 4261 a unique object as the accretion disk can be detected in different forms on different scales.

The paper appeared in Astronomy & Astrophysics 354. L45-L48 (2000). A press release (with a pretty picture) about this first scientific result can be found at the following URL:

<http://www.jive.nl/jive/jive/correlator/firstsci.html>

This newsletter was prepared by Harro Verkouter, offline software scientist at JIVE, Dwingeloo.

I would appreciate your suggestions, comments, additions and any other

form of feedback, especially if you plan to have a symposium (or the like). Please <mailto:verkouter@jive.nl>.

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