the night assistant at La Silla, but it has
done remotely as well. This took 30 seconds
longer and gave the same answer.

The most serious argument used by
astronomers is that their object is very
faint and that it is difficult to position it at
the slit. If the object is not visible on the
video screen, it is necessary to take
acquisition images and to move the
telescope such that the selected object
falls in the slit. Sometimes two such
exposures are needed. The additional
overhead becomes larger if the science
exposures are relatively short and there
are many targets: if too many acquisition
images need to be taken, the observer
should go to La Silla.

Finally, multi-object spectroscopy is a
special case: first the positioning of the
telescope may be rather delicate (al-
though here it helps that it is possible to
take a direct image through the slit), but
more important is the effort it takes to
prepare the mask. This is generally done
in the afternoon, but the software needed
for this is so far only available at the
telescope, and help by a technician with
access to EMMI may be needed. We do
not at the moment accept MOS runs for
remote control.

9. Eavesdropping

So far we have not discussed eaves-
dropping. The system at the NTT allows
for this as well (in fact it should be possible
to implement this option for all telescopes
on La Silla). If the true observer is at the
telescope, and all the eavesdropper does is
to help in analysing the data, there is
little that can go wrong and the gain could
be significant. We find that few observers
have the time and energy to do a thorough
analysis of their data while observing
(which is a good reason why so many remote
observers come in pairs). In view of this,
surprisingly little use has been
made of this facility at ESO, possibly
because of a lack of awareness. It is also
possible that the eavesdropper is the real
observer, who instructs the person at the
telescope what to do. In that case all of the
above on remote observing applies, with
the disadvantage that there is another
delay when the eavesdropper commu-
cicates back to the person at the telescope,
but with the advantage that he doesn’t
have to bother trying to find out how to
operate the instrument. At ESO we have
no experience with this.

10. Future

What is the future of remote observ-
ing? There is clearly a demand from the
user community, seeing that a third of the
optical NTT proposals request this mode.
Part of this may be due to the fact that it is
easier to come with more than one person
in this mode. The recent experience has
shown that, for many programmes, re-
move control is competitive with local
observing, being as efficient in telescope
usage while giving a saving of the
astronomer’s time. At the same time,
there is a large group of people who prefer
to travel to La Silla. We will for the time
being continue to offer remote observing
as a service to the community, but not
force it upon people. (This last statement
is true for the NTT: for the CAT we do
prescribe it as the normal mode.) We will
try to improve the system to alleviate the
doubts as expressed above.

A major upgrade of the NTT control
system is being undertaken as part of the
NTT Upgrade Project. The aim of this
activity is on the one hand to verify the
concept and software to be used for the
VLT, on the other hand to provide an
identical interface on the NTT for higher
level operational tools, procedures and
methods to be used on VLT. Using the
NTT as a testbed for VLT for all these
aspects is considered essential in order
to operate VLT in an efficient way. It is
expected that the VLT technology and
software architecture will give essential
performance advantages also for remote
observing. Faster computers, more effi-
cient communication protocols, on-the-fly
data compression and fast data forward-
ing will reduce the data-transfer rate. The
limiting factor of a CCD display will
become the read-out time, independent of
where the display unit is located.

11. Conclusions

We have shown that the observing
efficiency does not degrade when using
active remote observing for the ESO NTT
as compared to classical observing. This
allows more flexibility in scheduling,
shorter observing programmes, long-
term monitoring programmes, and sav-
ings of astronomer’s time.

However, active remote observing is
nothing else than moving classical ob-
serving to another site. It does not
address the “first night syndrome”. To
increase the scientific efficiency, service
observing may be a more important
observing mode than remote observing.

The move to service observing may
or may not make active remote observing
obsolete. Assuming the service observer
will be at the telescope, we would expect
increased demands for eavesdropping
capabilities. The requirements for this to
be successful are a sufficiently fast link
and adequate communication facilities,
i.e. not much different from those of active
remote observing. The main role of active
remote observing may be found in the
new generation of large telescopes,
where the observing runs may be very
short, and for astronomers in places
where travel money is difficult to get.

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Library and Information Services in Astronomy II (LISA-II)

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Library and Information Services in Astronomy II (LISA-II), an IAU Technical
Workshop, was held at the European
Southern Observatory (ESO), Garching
near Munich, Germany from May 10-12,
1995. LISA-I had been held in Washing-
ton D.C. in 1988. The aims of LISA-II were
two-fold: (1) to provide the opportunity for
librarians of astronomical observatories

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LISA-II once again has shown how important meetings of this kind are, especially to librarians, who have not always had a possibility to meet their colleagues personally in the past. The results will be manifold, be they additional information about techniques and tools in information services, closer working relationships, or higher motivation in general. We are looking forward to LISA-III which hopefully will take place in the near future.

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