Switching the United Kingdom Infrared Telescope to remote operations

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UKIRT

- First light in 1979
- Largest dedicated IR telescope until VISTA
- Operated with three Cassegrain instruments
- In 2005 started using WFCAM
- Dedicated WFCAM use since Feb 2009
- Now almost exclusively in survey mode
Motivation

The switch to remote observing driven by funding pressure (STFC)

- Streamlined science programme
- Elimination of visiting observers, no summit support
- Remote operations – remove summit operating costs
Objective: to reduce the cost (to STFC) of operating UKIRT such that it becomes more attractive to continue operating than to close it.

<table>
<thead>
<tr>
<th></th>
<th>Current Mode</th>
<th>UKIRT Closed</th>
<th>Minimalist UKIRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCMT (STFC)</td>
<td>2.8</td>
<td>5.0</td>
<td>3.0</td>
</tr>
<tr>
<td>UKIRT</td>
<td>3.7</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6.5</td>
<td>5.0</td>
<td>5.0</td>
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</tbody>
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All numbers in US$M for FY11/12.
Brief history

- Need change became apparent in January 2010
- Board approval given in April
- Implementation plan produced in June
- Terms and conditions reviewed in July/August
- Main engineering work October/November
- First remote night 13th December 2010
That was fast!
How did we manage to make such a fundamental change on such a short timescale?
Stuff that really helped

- JCMT crew still operate at summit
- The crew inspect UKIRT each evening
- They are available in case of emergencies
- Infrastructure was already in place (PLC/EPICS)
- Tests in early 2010 showed no showstoppers
- OMP software makes observing “easy”
Stuff that’s not so helpful

- Reliant on JCMT crew being at summit
- Must close if JCMT crew leave
- We cannot open without initial inspection
- Ice forming after dark makes us very cautious
Security and safety

- Infrared and low-light cameras
- Motion detectors
- Microphones
- Secured dome
- Initial inspection
- Continuous contact with JCMT (polycom)
- Automatic shutdown systems
Remote operation model

- No observer, only a single TSS (operator)
- Shifts shared between three TSSs, 5 on 10 off
- Only UKIDSS, campaigns, CEOU and UH with a little PATT and DDT
- Remote eavesdropping possible
- Visiting observer welcome but will be bored
- Staff update priorities page daily but OMP tells TSS what to observe
- DR pipeline provides all necessary information
Some remarkable results

Only been running for a couple of months, but…

- TSSs seem very happy at sea level
- Efficiency hasn’t been affected so far
- Fault rate remains very low (~2%)
- Phone call rate is not out of hand
Things I’ll miss