Morag Hastie –University of Arizona

It has been known for over 20 years that using a deformable secondary mirror in a telescope to correct for atmospheric distortions has several advantages for scientific gain over conventional, bench-mounted, adaptive optics (AO) systems. Conventional AO systems increase the number of reflective surfaces into the telescope beam, which limits the capabilities of the system and the resultant image quality. However, until very recently, only one observatory in the world has had a working AO secondary in operation. The MMT Observatory in Arizona commissioned an AO secondary mirror in late 2002 and has worked in the intervening years to shepherd a proto-type technology into a facility class system. The AO secondary is now routinely used for science operations upwards of 60 nights every year with both the NGS and LGS systems. In the light of the increased use of AO secondaries at current (e.g. MMT, LBT, VLT) and proposed facilities (e.g GMT), it is timely for us to talk about the lesson's that have been learned by the MMT observatory over the last 10 years. In my talk I will give an overview of the MMT's AO secondary but will concentrate on describing how the system performs, the improvements we are putting in place to increase performance and the operational "pot holes" which we have encountered over the years.