REMOTE OBSERVING AT ISAAC NEWTON GROUP OF TELESCOPES

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Isaac Newton Group of Telescopes (ING) consist of 4.2-m William Herschel Telescope (Figure 1), 2.5-m Isaac Newton Telescope (Figure 2). They are on top of Roque de los Muchachos in La Palma, Spain. Both these telescopes with all our instruments can be used remotely from our sea-level office.

The remote observing project started from the need to be able to make adaptive optics tests and preparations, like flattening the mirror, from sea-level. This saved a 80 km drive up and down the dangerous mountain road. Little by little the project grew up to the stage where we are now able to give support for visiting astronomers, we can train our staff and students, we can do testing, and of course remote observing from sea-level.

We use Virtual Network Computing (RealVNC) to duplicate the control systems from mountain top control room to sea-level office. We have almost identical set up in our sea-level remote observing office (Figure 3) as in William Herschel Telescope control room (Figure 4). The network infrastructure between sea-level and mountain top is 100 Mbps full-duplex, with 20 Mbps half-duplex spare.

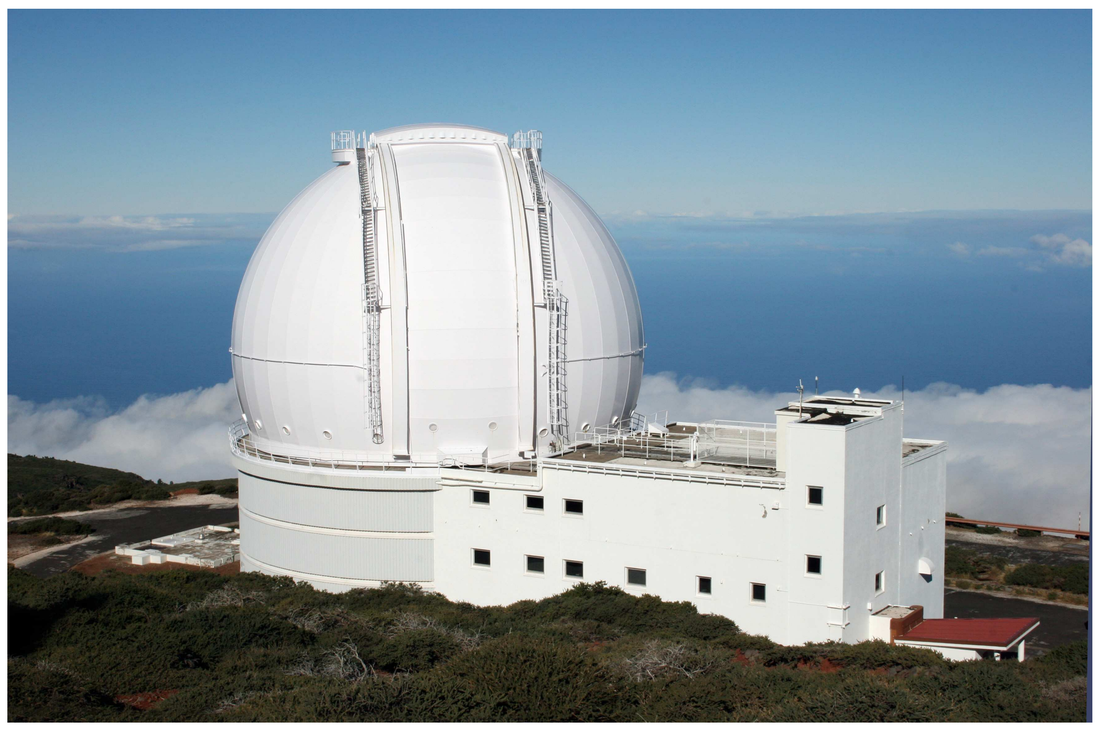

Figure 1: William Herschel Telescope. Latitude: 28 45 38.3 N (+28.761 deg), longitude: 17 52 53.9 W (-17.882 deg), ground floor height: 2332 m.

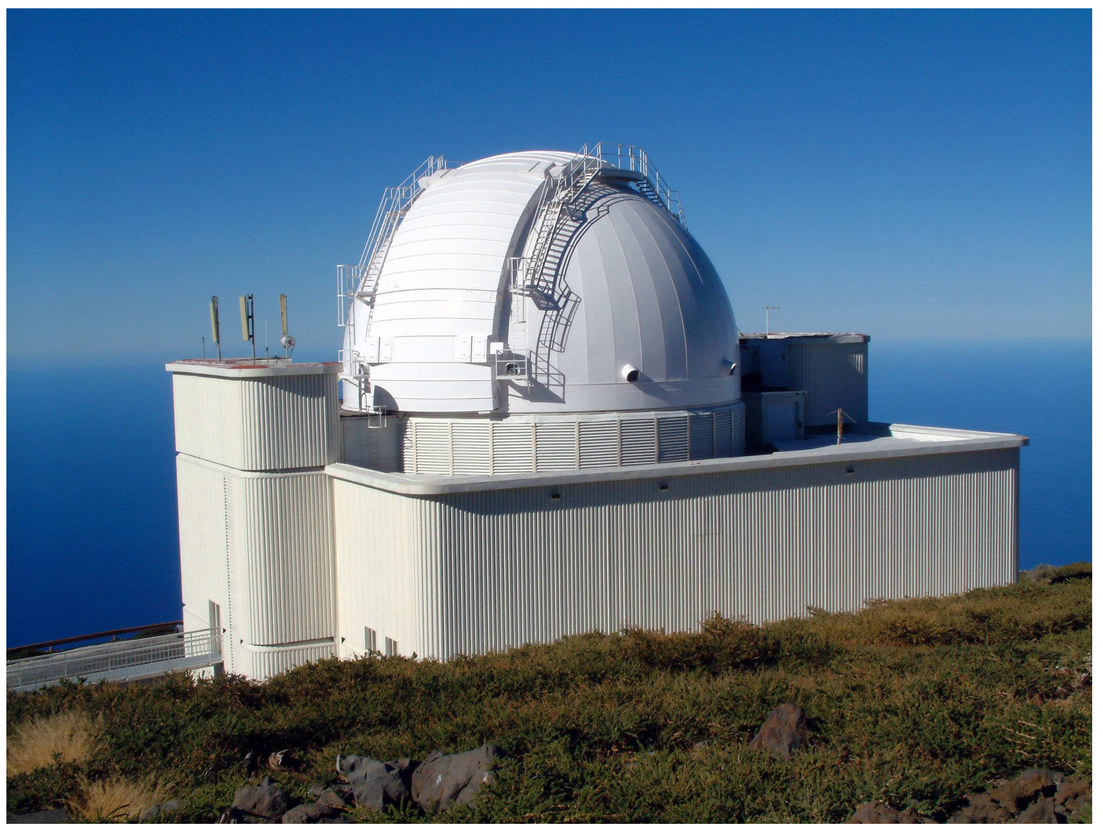

Figure 2: Isaac Newton Telescope. Latitude: 28 45 43.4 N (+28.762 deg), longitude: 17 52 39.5 W (-17.878 deg), ground floor height: 2336 m.

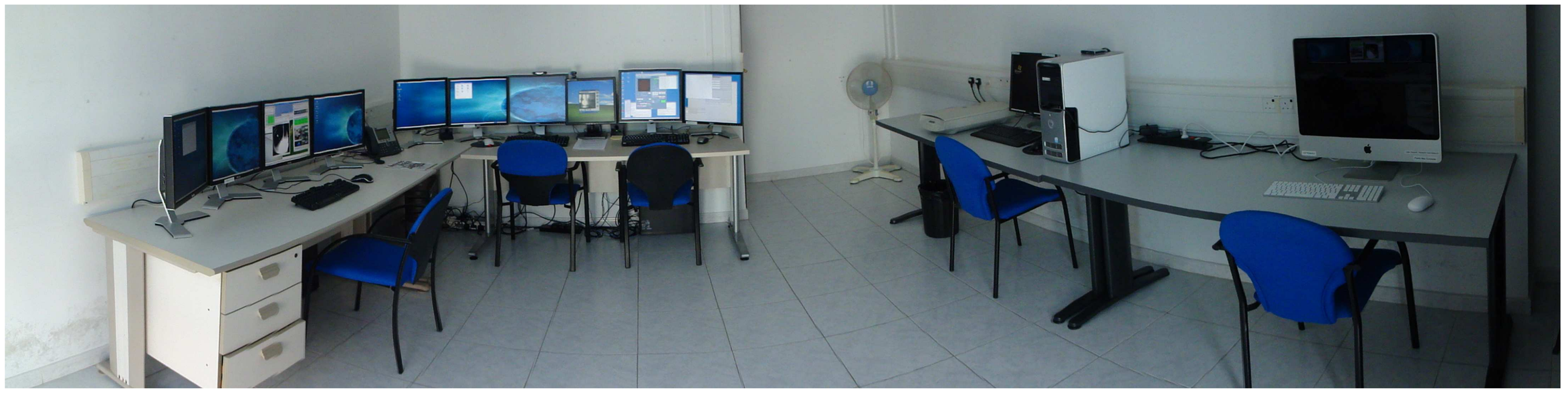

Figure 3: Remote observing room at sea-level office in Edificio Mayantigo, Santa Cruz de la Palma. From left to right, the first four monitors are for Observing Support Assistant, three in the middle are for controlling the instruments, webcam to communicate to mountain top control room and two monitors for adaptive optics. On the right wall there are Windows and Mac computers for guest use.

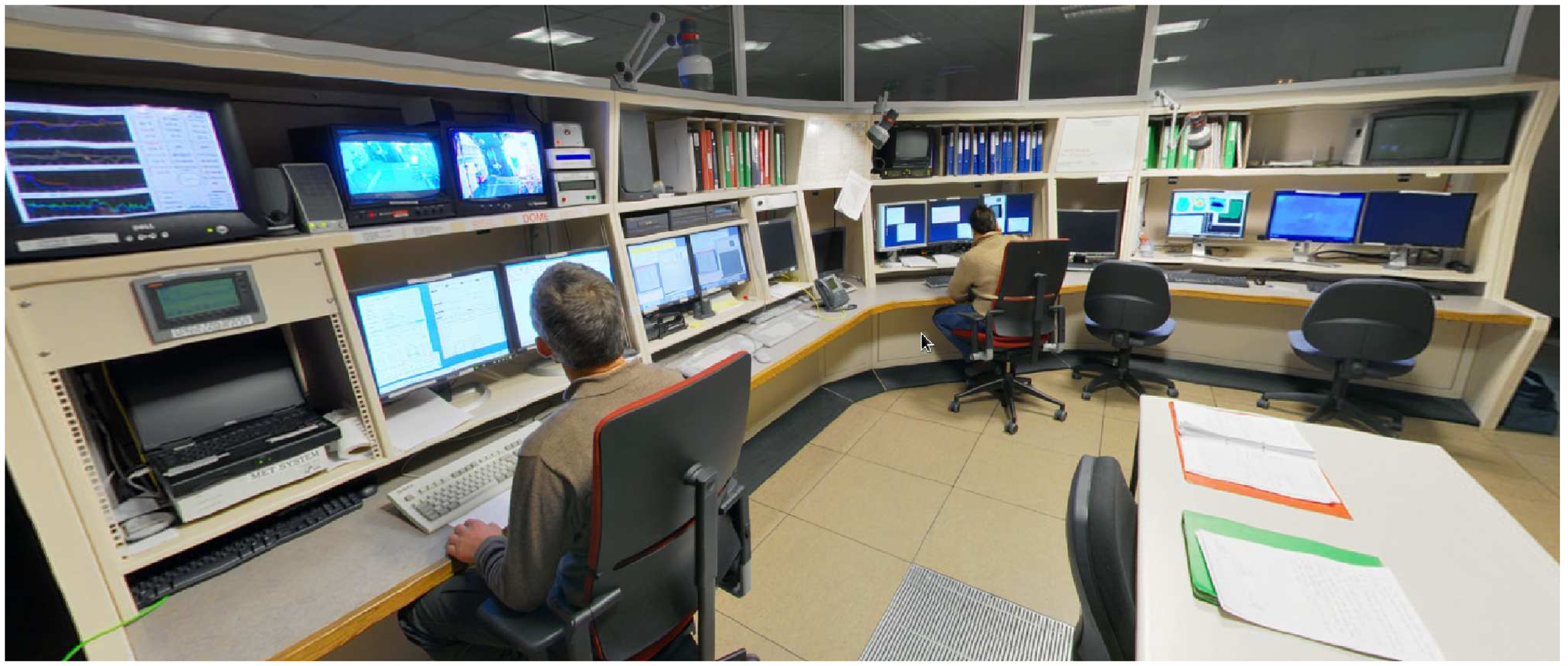

Figure 4: Control room at William Herschel Telescope. Leftmost four monitors are for Observing Support Assistant, screen for webcam, three in the middle for observer and two rightmost ones are for adaptive optics. Also seen are the screens used for data reductions.