

# Astronomers hunger for more despite richness around them

**Santiago.** The most powerful telescopes in the Southern Hemisphere peer out at dry, cloudless skies over the mountains of northern Chile. But when the astronomers who use them pack up and head home, only a tiny handful remains in Chile. Most board aircraft for Europe, the United States and Asia, like modern-day pirates returning with their treasure of scientific observations.

With only a few dozen active astronomers, Chile cannot be a leader in the field. But it is no longer content to be merely the home of world-class astronomy — in particular, the European Southern Observatory (ESO) at La Silla, the Cerro Tololo Inter-American Observatory (CTIO), operated by the US-based Association of Universities for Research in Astronomy, and the Carnegie Institution's Las Campanas observatory. It wants a larger share — more observing time, more cooperative programmes and more public benefits as payment for providing the sites (see *Nature* 363, 384; 1993).

Two things must happen first: the world must acknowledge Chile's contribution and Chile must put more of its own resources into astronomy to take advantage of those opportunities. Alone, neither is sufficient.

"If the observatories were elsewhere — in a European country, for example — the problem wouldn't exist", says Bob Williams, who is leaving Chile in August

after eight years as CTIO director to become head of the Space Telescope Science Institute in Baltimore, Maryland. "It would simply be accepted that the host country deserves a share of viewing time. But if this were a mining enterprise rather than an observatory, the government would recognize its value and invest accordingly."

CTIO built into its original agreement for the 4-m telescope 10 per cent of the viewing time — 18 days in each six-month schedule — for astronomers at the University of Chile, regardless of the quality of their proposals. Williams admits that a few of the successful Chilean proposals are weaker than some rejected proposals from elsewhere, but he says that happens "maybe four nights out of 180, and only on the large telescope, and that the overall impact is minuscule." And he adds, "funding that work really benefits science in Chile".

By contrast, ESO allocates time strictly on the basis of quality (although its decisions yield a distribution that closely matches the financial contribution of each member country), and the leading Chilean astronomers are funded sporadically, if at all. That has led to tense relations between Chile and ESO, and is one reason why the government is seeking a guaranteed minimum amount of time on the Very Large Telescope being built on a second site, some 300 km north of La Silla.

ESO believes that Chile's request for a 10 per cent share is unreasonable and that it should instead strengthen its university programmes so that its scientists can compete internationally. "Holland has a community five times larger and it gets only about 7 per cent of the time", says Jorge Melnick, a Chilean astronomer trained in the United States who is director of the La Silla observatory. "And what are Chilenos going to do with that time, anyway? What Chile needs is to invest in people — find good students and offer them jobs with decent pay after they are trained."

Chilean astronomers admit to falling well short of that goal. "We have only a master's programme", says Maria-Tereza Ruiz of the University of Chile, "and we don't want a PhD programme yet because we don't think we have enough people here to train world-class astronomers." But she and her colleagues believe that more observing time is essential to that goal.

"Astrophysics is one of the few sciences

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Jorge Melnick at ESO's guesthouse in Santiago.

in Chile that has the potential to be at the frontiers of knowledge", she says. "But we wouldn't be here if they [CTIO] weren't here and allowing us to have 10 per cent. At ESO, they don't care about training the next generation of Chilean astronomers."

Melnick disagrees, pointing to donations of computer equipment, journal subscriptions, vehicles and other material to several Chilean universities. He says that ESO has invited Chile to become a member, thereby giving Chilean technicians a status equal to Europeans (who are paid much more as an inducement to live in Chile) and Chile a greater voice in organizational matters, but that "all they care about is telescope time". He says that ESO "will be happy to help" once Chile "decides how much it wants to commit to astronomy".

Gaspar Galaz, a graduate student in astronomy at the University of Chile, is also eager for an answer from the government. He is living proof of the potential impact of the international observatories on Chilean science, as well as the tenuous position that astronomy holds in any hierarchy of possible careers for talented students.

"I remember visiting Cerro Tololo as a teenager, with my family, and thinking, 'Gee, I'd like to do that someday.' If I had grown up in Venezuela or Paraguay, I'd probably be studying something else." □

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**U. of Chile astronomers José Maza and Maria-Tereza Ruiz analyse red shifts in quasars.**