Committee Reviews Future of Astronomy in Israel

Ever since humans first glanced up at the star-studded night sky, astronomy has inspired them to explore the nature of the universe and their place in it. Modern observational astronomy depends heavily on highly sophisticated large telescope facilities, in dark remote locations. Such behemoth facilities are peering ever deeper into space, further back into time and closer to the heart of nature's secrets. The equally astronomical cost of such telescopes usually requires international cooperation and funding, and the choice of which facility to join (if any), and how and when, must usually be made at the national level.

The Israel Academy of Sciences and Humanities recently invited an international committee of distinguished astronomers – Prof. George Miley, Director of the Leiden Observatory, Prof. Richard Ellis, Director of the Palomar Observatory, and Prof. Jacob Bekenstein of the Hebrew University (a member of the Israel Academy) – to evaluate Israeli astronomy and its options for joining such a major facility. The committee was highly impressed by the breadth and excellence of Israeli astronomy. Many of today's most important fundamental scientific questions are being investigated and the international impact of Israeli astronomers and astrophysicists is high, particularly in such areas as cosmology, active galactic nuclei and gamma-ray bursters.

However, Israeli astronomy differs from that of other advanced countries in its high ratio of theory to observation – about 80%/20% compared to 30%/70% abroad – and in its low level of overall funding (per capita or per GNP), about one-half to one-fifth that of the Netherlands and U.K. The latter is explained by Israel's nonparticipation in any large international observatory, which constitutes about half of the Netherlands' total astronomy budget. What little observational expertise Israel has is concentrated around the Tel Aviv University's Wise Observatory, whose 30-year old 1 meter telescope, located on a non-optimal site in the Negev Desert, is limited by today's standards (a 10 meter telescope has 100x the light-gathering power). Time-shared access to a larger international telescope was deemed important to the future of Israeli observational astronomy and to taking full advantage of Israel's theoretical capabilities, although Israeli theoreticians do often collaborate with foreign astronomy groups with such access.

The committee was asked to comment on the advisability of buying time on a 10 meter, segmented mirror telescope, the GranTeCan, now being constructed on the Canary Island of La Palma, Spain. A 10% share would cost about $10 million plus a $600,000 annual contribution. It outlined its support for and reservations about this option, while suggesting that Israel simultaneously consider the European Southern Observatory (ESO) in Chile as another option, with its own pluses and minuses. Although Israeli astronomers could probably continue to piggyback as ad hoc members of foreign teams, Israeli long-term planning and leadership in observational astronomy would require, in their view, further exploration and negotiations leading to Israel's formally joining and owning reliable time on an advanced telescope facility. In contrast, inaction could well lead to a gradual decline in this area.