

ASTRONOMY IN SAUDI ARABIA

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In the last twenty-five years, more than 100 astronomers have graduated from two astronomical departments in the Kingdom: one at King Saud University (KSU) in Riyadh and the other in King Abdulaziz university (KAU) in Jeddah. About 15% to 20% of those graduated are now working in fields related to astronomy, among them five with Ph.D. degrees and three with M.Sc. degrees. Most of the other astronomy graduates are teaching mathematics, physics or general science in schools.

The total number of academic staff in the two universities is ten Ph.Ds (five Saudis and five from abroad) and five research assistants, with no post-graduate students. Each department has a Celestron 14-inch (approx. 0.35m) with photo-counters, a 15-cm coudé refractor, solar laboratory, small planetarium and astronomical measuring instruments. In addition, KAU has a CCD camera, while KSU has a double telescope with 45cm Ritchey-Chrétien optics and a 24cm Schmidt telescope. All these observational facilities are located near the universities, where light pollution is very high and limits the observations. There is a plan to move the KSU double telescope away from Riyadh. Because of a lack of students and Saudi teaching staff, and cuts in the budget for universities, it is planned to turn the two astronomy departments into groups in the respective physics departments.

The Institute of Astronomical and Geophysical Researches (IAGR) in King Abdulaziz City for Science and Technology (KACST) by Special Royal Decree has responsibility for all large-scale astronomical projects, such as the National Observatory Project (NOP). The site-selection programme for the NOP was begun ten years ago by KACST, with the help of a Canadian team and later an American consultant. The project has been delayed, however, by the Gulf War and the oil fires in Kuwait, which affected the Saudi atmosphere. Furthermore, earthquakes in Egypt directed most of the efforts of IAGR and KACST to geophysical projects, thus reducing the budget available for astronomy.

Six astronomers are working in IAGR, none of them with Ph.D or

M.Sc. degrees. KACST have four 15cm coudé telescopes installed throughout the Kingdom for NOP site selection, and three Celestron 14-inch telescopes, which are used for observations of lunar-crescent visibility --of importance in Islam. KACST also manages a solar village in Oiana (near Riyadh), from which many solar data have been obtained over a period of ten years.

KACST is finalizing a contract with Australia to have a laser/lunar ranging telescope (75cm), which will be used for geodesy and geodynamic studies and research, as well as for studies of earth rotation, polar motion and in the time service.

There is a 3m radio telescope designed jointly by the electrical engineering and astronomy departments of KSU for solar observation. There are also plans by KACST to use a 10m radio antenna in the same way (this antenna is presently used only for remote sensing) but progress is slow because of the lack of staff.

In Riyadh there are two big planetaria which will soon be open to the public. There are science museums in Riyadh and Jeddah, where about half the displays are about astronomy. We hope that further developments will soon become possible through local and international cooperation.

Discussion: Dworetzky expressed concern that site selection for the National Observatory might be influenced more by geographical considerations than by the measured quality of seeing conditions. He thought it important that such an observatory should be in the best *astronomical* site. Al-Malki agreed. Percy pointed out that good science can be done with small telescopes, that even at a light-polluted site good science could be done on bright stars, and that amateurs can be useful collaborators. Al-Malki agreed, but pointed out that the light pollution in Riyadh is variable and sometimes stars fainter than seventh magnitude cannot be observed. Efforts are being made to recruit amateur astronomers to help in research work.