

## Fatal rocket accident puts question mark over Soyuz's safety

David Adam, London

Russian engineers are urgently trying to determine the cause of the accident that wrecked a Soyuz rocket shortly after take-off on 15 October, killing a soldier and destroying its payload, a European Space Agency (ESA) satellite.

A modified version of the same type of launcher is due to take three cosmonauts to the International Space Station (ISS). Russian space-agency officials have delayed the launch until 31 October to allow for their investigation.

Soyuz is viewed as a relatively cheap workhorse, and has been used to ferry people and equipment to the ISS about a dozen times since the beginning of last year. The unmanned version of the Soyuz launcher has a history of problems, although the more advanced manned rocket has an excellent safety record.

"No expense is spared when humans travel to space," says Georgy Poleshuk, deputy director of the Russian Space Agency.

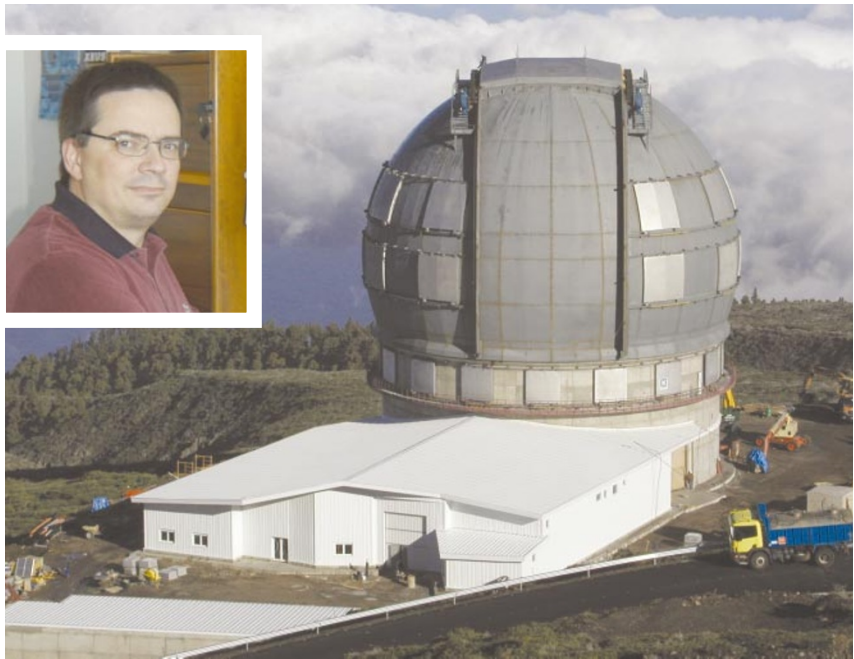
The accident, which occurred about 20 seconds after lift-off from the Plesetsk cosmodrome, 750 miles north of Moscow, showered the launch site and surrounding area with burning debris. The results of the accident investigation should be known this week. Early reports suggest that one of the rocket's first-stage engines failed to ignite.

The launcher was carrying Foton-M1, an ESA research satellite. "One of the advantages of this satellite was that some of the more delicate experiments could be placed on-board just a few hours before launch, so we had a number of researchers on-site at the time," says Dieter Isakeit, manager of ESA's ISS User Center in Noordwijk, the Netherlands.

All of the researchers were a safe distance away when the explosion took place, although a 20-year-old Russian soldier was killed and eight others were injured.

The satellite, which was designed for a 15-day mission, was carrying dozens of experiments covering a wide range of disciplines, including biology, crystal growth and exobiology.

Martin Miller, a space researcher at the Open University in Milton Keynes, UK, is part of a team that was aiming to investigate how meteorites burn up in the atmosphere. "Although in monetary terms our experiment was pretty small beer, this will cause significant delays and disruption to our research," he says. ■



Xavier Barcons is worried that Spain will not be able to make full use of the Gran Telescopio Canarias.

## Spain's staff shortages leave astronomy plans up in the air

Monica Salomone, Madrid

Spanish astronomy departments are not hiring the people needed to take full advantage of the country's recent energetic involvement in international telescope projects, according to an extensive study undertaken for the government.

Spain is involved in a host of international astronomical projects, including the Atacama Large Millimeter Array (ALMA) under construction in Chile, the 10-metre Gran Telescopio Canarias (GTC) in the Canary Islands, set to begin operating in 2004, and several astronomical projects under the aegis of the European Space Agency (ESA).

But "the recruitment of new researchers is so low that we won't be able to profit from all this effort", says Xavier Barcons, one of the authors of the study, which examined the performance of Spain's astronomers between 1999 and 2001 for the Ministry of Science and Technology.

Only half of Spanish astronomers hold permanent positions, the study has found, with the rest working under temporary contracts or fellowships. And in the period studied, the number of researchers increased by less than 2% per year. "Current human resources are scarce," the study concludes. "Without a substantial increase in the next years, we will be unable to face the challenges represented by the new instruments."

"Even in those areas in which Spanish

astronomy has a longer tradition, such as optical and infrared astronomy, the shortage is severe," says Barcons. "And soon we will have 90% of the time of the GTC. We are not going to be able to take advantage of the resources."

Barcons adds that although Spain pays for 7% of ESA's scientific programme, Spanish astronomers only get about 2% of the available observing time on the space agency's XMM-Newton X-ray telescope. Overall, Spain has 11.5 astronomers per million inhabitants, the study says, whereas Britain, Germany and France had 23, 17 and 16, respectively, in 1998.

The study's authors based their findings on an analysis of the scientific literature, data gathered from the 34 centres and university departments, and a questionnaire sent to 450 researchers, 40% of whom responded. In the period studied, each Spanish astronomer published an average of one paper per year in journals whose papers are cited elsewhere an average of just over three times each. The Spanish papers were cited almost five times each on average — indicating, the study's authors say, that Spanish astronomy is in good scientific shape.

Respondents to the questionnaire ranked the creation of more permanent posts for researchers as the top priority for the field, followed by more reliable research funding, and then full Spanish membership of the European Southern Observatory. ■