Groundbreaking for the European Extremely Large Telescope (E-ELT)

On 19 June 2014 a groundbreaking ceremony took place to mark the next major milestone in the construction of the European Extremely Large Telescope (E-ELT). Part of the 3000-metre peak of Cerro Armazones, which was selected as the site of the 39-metre telescope in 2010, was blasted away as a step towards levelling the summit in preparation for the construction of the E-ELT telescope and dome[1].

The groundbreaking ceremony was held at the Paranal Observatory, 20 kilometres away from Cerro Armazones. It was attended by distinguished guests from both Chile and the ESO Member States, as well as representatives of the local communities, senior officials from the project and ESO staff (see Figure 1). The event was also streamed live online and a recording of the event is available for download[2]. The ESO Director General, Tim de Zeeuw, gave a speech as part of the ceremony and the text is presented below. The order to proceed with the blasting itself was given by the Chilean Vice Minister of National Assets, Jorge Maldonado.

During the groundbreaking ceremony the Chilean company ICAFAL Ingeniera y Construcćion S. A. blasted part of the top of Cerro Armazones and loosened about 5000 cubic metres of rock (see Figure 2). This is the first stage of the levelling process which will landscape the mountain, so that it can accommodate the dome. A total of 220 000 cubic metres will need to be removed to make room for the 150 by 300 metre E-ELT platform.

Figure 2. The moment of the explosion which loosened ~ 5000 cubic metres of the summit of Cerro Armazones, photographed from a few hundred metres distance.

The Cerro Armazones civil works started in March 2014 and are expected to take 16 months. In addition to the construction of the summit platform, the works include the laying and maintenance of a paved road and the construction of a service trench to the summit.

Links

[1] The E-ELT Construction Proposal: http://www.eso.org/public/products/books/book_0046/
[2] Release eso1419, with access to images and videos: http://www.eso.org/public/news/eso1419/

Figure 1. The line-up of invited guests and ESO staff at the E-ELT groundbreaking ceremony held at the Paranal Observatory on 19 June 2014.

Welcome Speech

Tim de Zeeuw, ESO Director General

Distinguished sub-secretary of Biennes Nacionales, intendente of Region II, ambassadors, other authorities, dear colleagues and friends,

It is a great pleasure to welcome all of you to the milestone event that marks the beginning of the construction of the world's largest optical telescope, the European Extremely Large Telescope, the E-ELT, on nearby Cerro Armazones, which will be part of the world-leading system of telescopes here on Paranal.

The E-ELT will have a main mirror of 39 metres diameter and will take ten years to build. It will dwarf any other optical telescope and will allow tremendous astronomical discoveries, not only in the deep Universe but also closer to home, for example, providing an unprecedented look into the properties of the supermassive black hole that lurks in the centre of our Milky Way. One of the most exciting programmes will be to study the atmospheres of Earth-like planets orbiting other stars, and to search for signs of biological activity. Finding evidence of life elsewhere in the Universe would be a transformational development in the history of our species. It is ironic that this could happen here in the Atacama Desert, one of the most beautiful but lifeless locations on our own planet.

The construction of the E-ELT is supported by all 14 Member States of ESO, who have committed significant additional funding to make the dream a reality. The Chilean government was similarly supportive by protecting the night skies, and by generously donating a significant tract of land to extend the Paranal property to include Cerro Armazones. The discussions started during the time of the worldwide site selection process, towards the end of President Bachelet's first term, and the resulting E-ELT Agreement between Chile and ESO was signed in October 2011. Gabriel Rodriguez of MinRel had a key role in making this happen. Former President Piñera personally handed me the deed to the extension area right here in October of last year, clearing the way for today's event, now again under the aegis of President Bachelet.

The Republic of Chile has also assisted with the connection of the Paranal/Armazones Observatory to the electrical grid, as part of the regulated national system. It will be built by SAESA. This fulfils a key undertaking contained in the 2011 E-ELT Agreement for which ESO and its Member States are enormously grateful. I was very pleased to sign the contract with SAESA today, and am very happy that the SAESA leadership and the national authorities involved on energy matters are here with us as well.

The construction of the E-ELT provides many opportunities for industries in the ESO Member States and in Chile. The construction of the new access road and the telescope platform on Armazones, which are the subject of our groundbreaking ceremony today, is carried out by ICAFAL, whose leadership is also present here.

Exactly 30 years ago today my wife Ewine and I both received our PhD degrees in astronomy at Leiden University, with ESO founding fathers Jan Oort and Adriaan Blaauw in the committee. At this time La Silla was ESO's flagship, the Very Large Telescope was in the planning stages, ALMA was not yet conceived, and no serious thought was given to 40-metre-class optical telescopes. I suspect there were few, if any, who foresaw the tremendous evolution ESO's programme would experience in the next thirty years. Ewine and I certainly did not expect that our 30th PhD anniversary would coincide with the key milestone for astronomy we pass today, hopefully leading to first light in exactly ten years from now!

It has taken 15 years to get to this point, thanks to the efforts of many, many people, inside and outside ESO. Particular credit is due to Roberto Gilmozzi, a former Paranal Director, for starting the precursor 100-metre diameter OWL project, to Riccardo Giacconi for allowing it, to Catherine Cesarsky who steered the process that resulted in the start of a full design study for what was, by then, the E-ELT, and to Jason Spyromilio who led the design effort. It is unfortunate that for a variety of reasons none of them could be here today, to join us on this festive occasion.

Finally, it is important to recognise that Chile does not just provide a privileged platform for astronomical observations. ESO's telescopes also provide training and employment for many Chileans: administrative staff, astronomers, engineers, technicians and telescope operators. Chilean universities host internationally recognised astronomers who collaborate actively with colleagues in the ESO Member States. Some are now developing engineering programmes to produce state-of-the-art astro-technology products, creating capabilities and know-how that will benefit many other aspects of Chilean society. ESO is proud to be associated with this impressive growth of capabilities, and looks forward to starting exchange programmes as part of the E-ELT Agreement to strengthen the already existing cooperation further.

The E-ELT will no doubt produce discoveries that we simply cannot imagine today, and it will surely inspire numerous people around the world to think about science, technology and our place in the Universe. It is exciting to take the first step towards this goal today, so that the strong team led by Roberto Tamai can transform what was once a dream into a reality!