

Seven Years in Chile: The Accomplishments and Goals of Czech Astronomers at ESO

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The Czech Republic has been a member of ESO since 2007 and the workshop was held to mark this occasion. The primary aims of the workshop were to highlight the science done by Czech-affiliated astronomers who make use of ESO facilities and to encourage greater use of these facilities, particularly by the younger generation of astronomers in the Czech Republic.



Figure 1. The workshop participants at Villa Lanna, Prague.

Czech astronomy and ESO

Astronomical research in the Czech Republic covers many areas, including meteors and asteroids, the Sun, stars across the Hertzsprung–Russell diagram, Galactic structure as well as relativistic astrophysics. The majority of astronomers are affiliated with the Astronomical Institute of the Academy of Sciences and are based in Ondřejov and in Prague. Astronomical research is also conducted at Charles University in Prague, Masaryk University in Brno and the Silesian University in Opava. Finally, numerous public observatories and planetariums contribute to education outreach in the Czech Republic.

The Czech Republic became the 13th ESO Member State on 1 January 2007, an event that opened up many new opportunities for Czech astronomers. Currently, the Czech Republic contributes about 1% to the ESO budget. The return from this investment is potentially very high; ESO membership offers privileged access to many of the world's most advanced telescopes, the chance to contribute to instrument development

and to take advantage of training and employment opportunities.

How can the Czech Republic effectively benefit from all these opportunities? How did ESO membership change Czech astronomy? Also, how can we help the Czech astronomical community to do better? We sought answers to these questions during this workshop.

The workshop

The workshop was structured in sessions based on observing techniques and instrumentation offered by ESO and covered the optical, infrared and submillimetre spectral ranges. The last day focussed on the next generation of astronomers, with an overview of the current state of Czech astronomy and a look to the future.

The first session was opened by Jan Palouš with an historical overview of ESO and the circumstances surrounding the accession of the Czech Republic. He was immediately followed by Johannes Anderson, former director of the Nordic Optical Telescope, who related the Danish experience with ESO and emphasised

the need for a detailed plan to achieve higher objectives. A user's perspective was offered by Adéla Kawka while the head of the ESO Observing Programme Office, Ferdinando Patat, presented observing programme statistics and some advice on successful proposal writing. Miroslav Bárta reported on the Atacama Large Millimeter/submillimetre Array (ALMA) Regional Centre node in the Czech Republic and Soňa Ehlerová informed the meeting about ESO's public outreach effort.

The workshop proceeded with an overview of the instruments offered by ESO and the research conducted with these facilities. The Paranal Observatory overview was given by Petr Kabáth and the Atacama Pathfinder Experiment (APEX) by Palle Møller, while Stanislav Štefl talked about ALMA and the Very Large Telescope Interferometer (VLTI). In addition, Pavel Gábor and Petr Pravec introduced the Vatican Observatory and the 1.54-metre Danish telescope (La Silla), respectively, while offering collaboration opportunities.

The following presentations highlighted important results obtained with ESO facil-

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ities. Using the Fibre-fed Extended Range Optical Spectrograph (FEROS), Tereza Krejčová demonstrated that cool stars with closely orbiting planets exhibit stronger Ca II K emission than stars with more distant planets (Krejčová & Budaj, 2012) and Stéphane Vennes highlighted the effectiveness of the X-shooter spectrograph for abundance studies in white dwarf stars (Kawka & Vennes, 2012). Ernst Paunzen's contribution covered the Magellanic Survey with the Visible and Infrared Survey Telescope for Astronomy (VISTA) and how it is used to study peculiar and variable stars in the Magellanic Clouds.

Chemically peculiar stars were mentioned by several speakers: Martin Netopil shared his work on the origin of chemically peculiar stars; using FEROS spectra, Milan Prvák showed how to map the surface abundance pattern of the chemically peculiar star HD 114365. Next, Birgitta Nordström pointed out the complementary use of ESO facilities and other instruments in providing the ground work for a detailed analysis of ~ 15 000 Solar-type stars (Nordström et al., 2004). Michaela Kraus spoke about K-band spectroscopy and how it can be used to discriminate evolutionary stages of evolved massive stars (Oksala et al., 2013). Finally, Robert Klement explained how various types of observations may be used to constrain the disc structure of the B8Ve star Beta CMI.

In her contribution Ivana Orlitová handled integral field unit (IFU) spectroscopy with the Visible Multi-Object Spectrograph (VIMOS), which was used to understand the origin of double-peaked [O III] lines in quasars. Using APEX, Pavel Jáchym showed that a large amount of cold molecular gas is present in the ram pressure stripped tail of ESO 137-001 (Jáchym et al., 2014). Another APEX study by Richard Wünsch revealed how two clouds in the Carina Flare supershell were observed in order to determine how they were formed (Wünsch et al., 2012). A comprehensive compilation of the results obtained with ESO by Czech affiliated astronomers is available at the Czech National Astronomical Committee (NAC) webpage¹, and the presentations are available at the workshop website².

Astronomy in the Czech Republic and the role of ESO

On the third and final day, the head of the ESO Office of Science in Garching, Eric Emsellem, discussed the opportunities available at ESO, including studentships, fellowships, as well as staff positions. Following this presentation, Lucie Jílková, a former ESO graduate student currently at Leiden, spoke about her experience in Chile. The ESO career session was followed by a panel discussion that encouraged students to get involved with ESO, either as guest observers supporting doctoral researchers, or as staff members. The panel was moderated by Jan Palouš and involved current and former staff at ESO. Two astronomers from the Czech Republic are currently employed at ESO and one Czech graduate student is supported by ESO's Director General Discretionary Fund; returning staff and students bring valuable experience to the Czech Republic and every effort must be made to foster future employment and studies at ESO.

The workshop concluded with a panel discussion led by Jiří Grygar concerning Czech astronomy and its future. The panel included representatives from Charles University, the Astronomical Institute of Academy of Sciences, Masaryk University, Brno, and the Czech NAC. Instructed by the experience of Danish astronomers in developing a national roadmap for research in astronomy, the Czech NAC was encouraged to prepare such a roadmap well ahead of any possible setbacks. This open discussion, involving astronomers in the Czech Republic and the commitment made to produce a roadmap, augurs well for the future.

The workshop presented ESO to the Czech astronomical community and, to a large extent, the Czech community to ESO. The relatively high number of participating students showed that ESO is important to the new generation of Czech astronomers. We hope that this workshop will contribute in encouraging further involvement with ESO. Finally, this workshop was the first in a series of planned events. Future events include a school on observing projects and univer-

sity lectures about state-of-the-art instrumentation.

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We would also like to thank the personnel at Villa Lanna (Prague) for their assistance in ensuring a smooth and friendly event.

Tragically Stanislav Štefl, who was an ESO astronomer in Chile from 2004 and did much to foster relations between ESO and Czech astronomers, especially among the young generation, died in June of this year. An obituary follows this report.

References

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Links

- ¹ Czech NAC webpage: <http://galaxy.asu.cas.cz>
- ² Workshop webpage: <http://astro.physics.muni.cz/cz-eso-2014>