

# NEWS RELEASE



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## ***World's Largest Array of Gamma-Ray Telescopes will be Constructed in Chile***

*CONICYT Signs Agreement on Scientific Collaboration with the Cherenkov Telescope Array Observatory to carry out this valuable project*

**Santiago, Chile** – On 19 December 2018, the [Cherenkov Telescope Array](#) Observatory (CTAO) Council and European Southern Observatory (ESO) signed the final agreements needed for CTA's [southern hemisphere array](#) to be hosted near ESO's Paranal Observatory in Chile. One of the highlights of this alliance concerns the scientific collaboration between CTAO and Chile's [Comisión Nacional de Investigación Científica y Tecnológica](#) (CONICYT) or National Commission for Scientific and Technological Research.

CTA will be the next generation ground-based instrument in the detection of [gamma rays](#), which are very high-energy electromagnetic radiation emitted by the hottest and most powerful objects in the Universe — such as [supermassive black holes](#), [supernovae](#) and possibly remnants of the [Big Bang](#). To provide access to the whole sky, the CTA Observatory will have two sites, with 19 telescopes in the northern hemisphere and 99 in the southern hemisphere.

A total of three agreements were signed in Santiago: between the Chilean government and ESO; between ESO and CTAO; and between CONICYT and CTAO. With these three agreements in place, the CTAO will be able to begin construction on the southern site. The hosting agreement with the [Instituto de Astrofísica de Canarias](#) (IAC) is already in place to host CTA's [northern hemisphere array](#) at the [Observatorio del Roque de los](#)

[Muchachos](#) in La Palma, Spain. Construction on both the northern and southern arrays is expected to begin in 2020.

“The scientific collaboration agreement with CONICYT was an important first step in strengthening the confidence of the Chilean Government in scientific collaboration and to achieve the installation of CTA telescopes in Chile, with ESO’s involvement,” commented CTAO Managing Director, Federico Ferrini. “We are looking forward to collaborating with CONICYT to develop a brilliant community of Chilean scientists and engineers that will become an important part of both Chile’s future and the future activities of CTA.”

Preceding the signing of the other two agreements today, Ferrini met CONICYT’s Executive Director, Christian Nicolai Orellana on 17 December to sign the scientific collaboration agreement between the two parties. The stipulations include the reservation of 10% observing time for the south site for scientifically meritorious proposals from a scientist affiliated with a Chilean institution, which will be subject to the general Time Allocation Committee ranking procedure of CTAO. CONICYT will have representation on various committees and, additionally, CONICYT will receive an annual contribution from CTAO, which will go toward a Chilean fund for astronomy-related development and to the regional government of the array site, Antofagasta.

“The installation of this new observatory will bring the study of the most extreme phenomena in the Universe to Chile,” explained the Executive Director of CONICYT, Christian Nicolai. “The project will be complemented with the installation of another array of telescopes in the northern hemisphere, which will foster scientific collaboration between both sides of the globe. In this way, Chile will be hosting the greatest concentration of technology observing phenomena from Earth. Thus, reaffirming Chile and its spectacular sky, the natural astronomical laboratory par excellence, as a world leader in astronomy.”

CTA’s southern site is less than 11 kilometres southeast of the location of the Very Large Telescope at ESO’s Paranal Observatory in the Atacama Desert, and only 16 kilometres from the construction site of the upcoming Extremely Large Telescope. This is one of the driest and most isolated regions on Earth — an astronomical paradise. In

addition to the ideal conditions for year-round observation, installing CTA at the Paranal Observatory brings the advantages of ESO's infrastructure.

Current gamma-ray telescope arrays only consist of a handful of individual telescopes, but CTA — with its larger collecting area and wider sky coverage — will be the largest and most sensitive array of gamma-ray telescopes in the world, with unprecedented accuracy and 10 times more sensitive than existing instruments.

Although the Earth's atmosphere prevents gamma rays from reaching the surface, CTA's mirrors and high-speed cameras will capture the short-lived flashes of eerie blue [Cherenkov radiation](#) produced when gamma rays interact with the atmosphere. Detection of this Cherenkov light will allow the gamma ray to be traced back to its cosmic source.

The scientific scope of CTA is extremely broad: from understanding the role of relativistic cosmic particles to the search for dark matter. CTA will explore the extreme Universe, probing environments from the immediate neighbourhood of black holes to cosmic voids on the largest scales. It may even lead to brand new physics as it studies the nature of matter and forces beyond the [Standard Model](#).

More than 1,400 scientists and engineers from 31 countries are engaged in the scientific and technical development of CTA. The Observatory will be constructed and operated by the CTAO [ERIC](#), which is governed by member states and associate members from a growing number of countries.

Shareholders of CTAO gGmbH – the entity that is preparing for the CTAO ERIC – are representatives of ministries and funding agencies from Australia, Austria, Czech Republic, France, Germany, Italy, the Netherlands, Japan, Slovenia, South Africa, Spain, Switzerland and the United Kingdom [1].

## Notes

[1] The Netherlands and South Africa attend as observers.

## **More Information**

CTA is a global initiative to build the world's largest and most sensitive high-energy gamma-ray observatory. More than 1,400 scientists and engineers from 31 countries across five continents (Armenia, Australia, Austria, Brazil, Bulgaria, Canada, Chile, Croatia, the Czech Republic, Finland, France, Germany, Greece, India, Ireland, Italy, Japan, Mexico, Namibia, the Netherlands, Norway, Poland, Slovenia, South Africa, Spain, Sweden, Switzerland, Thailand, the United Kingdom, the United States of America and Ukraine) and more than 200 research institutes are participating in the CTA project. CTA will be the foremost global observatory for very high-energy gamma-ray astronomy over the next decade and beyond and will be the first ground-based gamma-ray astronomy observatory open to the world-wide astronomical and particle physics communities.

CONICYT, the National Commission for Scientific and Technological Research, is an autonomous and functionally decentralized corporation, with its own assets and Public Law legal entity, aimed at advising the President of the Republic in the planning of scientific and technological development. It has three main objectives: (a) strengthen the country's scientific and technological base; (b) promote the training of advanced human capital; and (c) promote a scientific and technological culture within the population. In addition to its advisory role to the President of the Republic, CONICYT's mission is to promote and encourage science and technology in Chile in the support of the economic and social development of the country.

### **Image Links:**

[Southern array rendering](#)

[Southern array location](#)

[Signing ceremony photo](#)

[More CTA site photos](#)

[More photos](#)

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