

## Invitation to ALMA and exciting research with it

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ALMA telescope (Atacama Large Millimeter/submillimeter Array) is an international facility built and operated by Europe (ESO with its 16 member countries), North America (USA and Canada) and East Asia (Japan, Taiwan and Korea), in cooperation with Chile. It is located at the 5000-m site in the Atacama altiplano in the Andes in northern Chile, and has an extremely high performance in observing millimeter and submillimeter waves (wavelengths from 3.5 mm down to 0.32 mm). It is an aperture synthesis telescope consisting of 54 12-m parabolic antennas and 12 7-m parabolic antennas, and can adjust its spatial resolution by changing the antenna array configuration. In the long baseline campaign in 2014, ALMA demonstrated its maximum baseline of 15 km to reveal multiple ring/gap structure in the protoplanetary disk around HL Tau by the spatial resolution as high as 0.025" (3.5 AU) at the observing wavelength of 0.87 mm (ALMA Partnership et al. 2015, ApJL 808, L3). By observing protoplanetary disks around young stars with various characters and various stages, ALMA is revolutionizing our understanding of the earlier stages of planetary formation. East Asia, who contributes 25% of the construction and operation of ALMA, has a 22.5% share of the observing time (= 25% x 0.9, because 10% goes to Chile). This presents a great opportunity for researchers in Japan, Taiwan and Korea to join and drive the exciting research.

ALMA Regional Centers (ARCs) have been established in Europe, North America and East Asia as interface points between ALMA and research community. The East Asian ALMA Regional Center (EA-ARC) is located in the Mitaka headquarter of National Astronomical Observatory of Japan. ARCs take care of the call for proposal, preparation of the observing script for accepted proposal, quality assurance and delivery of observed data, and updates and maintenance of the data archive. ARCs are answering users' consultations on, e.g., proposal preparation and data analysis through a helpdesk and support astronomers.

In the present paper, I introduce how the observations with ALMA are made and how we support the researchers. I hope more and more researchers join in the exciting and revolutionary science using ALMA and its archival data.

National Astronomical Observatory of Japan/ALMA

<http://alma.mtk.nao.ac.jp>

East Asian ALMA Regional Center

<http://alma.mtk.nao.ac.jp/e/forresearchers/ea-arc/>

ALMA Observatory

<http://www.almaobservatory.org>

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