## V101a Update on ALMA Operations and Development Program - Spring 2021

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In this presentation, we will offer an update on ALMA Operations and Development Program.

Operations: Cycle 7 observations, which started in October 2019, and planning of Cycle 8 operations have been heavily affected by the COVID-19 situation worldwide. Due to the spread of the virus in Chile, the ALMA site was shut down from late March 2020, and started to be recovered from October 1st 2020. The Cycle 8 Call for Proposals was originally opened in March 2020 as planned, but suspended afterwards due to the impossibility to offer Cycle 8 as expected. An update on the situation with respect to Cycle 7 and 8 will be presented in this talk.

Development: NAOJ is collaborating in the development of receivers for Bands 1 (led by ASIAA) and 2 (led by ESO), and the ACA spectrometer (led by KASI) in addition to initial studies in hardware and software. In this presentation, we will provide an update on the status of the different projects and studies. In particular, we will report on the status of work towards the implementation of Band 1 and the ACA spectrometer in ALMA, and the demonstration of wideband receiver technology towards ALMA2.

Future Plan: ALMA2 has been included in the MEXT Roadmap 2020 after the recommendation of the Science Council of Japan in the Masterplan 2020. The ALMA2 Project will strengthen observation capabilities at the same time as operations of the ALMA telescope continue through international collaboration.