

Daily life of an ALMA worker

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Who am I and what ALMA is?

- Manabu Watanabe: a software engineer working for ALMA project.
- ALMA (A^{tacama} L^{arge} M^{illimeter}/submillimeter A^{rray}):
 - A radio interferometry in Atacama Desert of Chile.



画像提供：
国立天文台

Credit: Clem & Adri Bacri-Normier (wingsforscience.com)/ESO
2012年12月撮影

Real international project

- ALMA has been jointly built by **NAOJ** in Japan, **NRAO** in North America and **ESO** in Europe.
- Now JAO (**J**oint **A**LMMA **O**bservatory) in Chile runs ALMA.
- Computing team is distributed in the world and highly integrated.



How does ALMA impact on my daily life?

- Emails:
 - Received 652 emails **in a week** between 2020/1/9 to 2020/1/15.
 - **350** of 652 came from foreign addresses and written in English.
 - Sent 65 emails and **16** of 65 were written in English.
- Meetings and telecons:
 - 24 meetings and telecons **in a month** from 2019/11/15 to 2019/12/14
 - **11** of 24 meetings and telecons in English.
 - Including 2 days review and 1 day F2F meeting in Korea.
- Business trip:
 - 11 business trip **in three years** between 2017 to 2019.
 - **10** of 11 are overseas.

What challenges does ALMA give me?

- Time difference: 12 hours or 13 hours to Chile
 - Telecons with Chile: early in the morning or late in the night in Japan.
- Communication gap:
 - Communications in person rarely happen between colleagues in Japan and those in Chile due to the very long distance.
 - Time difference gives further limitations even to telecons.
 - Language barrier (for me).
- Long lead time (no immediate use nor quick fix):
 - ACA Spectrometer, for example, should be delivered to Science for commissioning 1.5 years before using that in the normal observation.
 - A proposal document and review telecons are necessary to applying the fix of a bug to the operational system.

What challenges does ALMA give me? (cont'd)

- NAOJ is one of major players in ALMA.
 - We can not make any ALMA wide decisions by ourselves and need careful coordination with other institutes.
 - Explicit agreement is necessary for any changes in general.
- Development, maintenance and operation are separated.
 - Documentation is very important (though it is difficult to do).

Get involved with ALMA

- If you want to work with foreign engineers/scientists,
- if you want to use English everyday,
- if you like to discuss every details,
- if you are good at writing documents,
- If you ... anything. You are welcome.