

A priori calibration

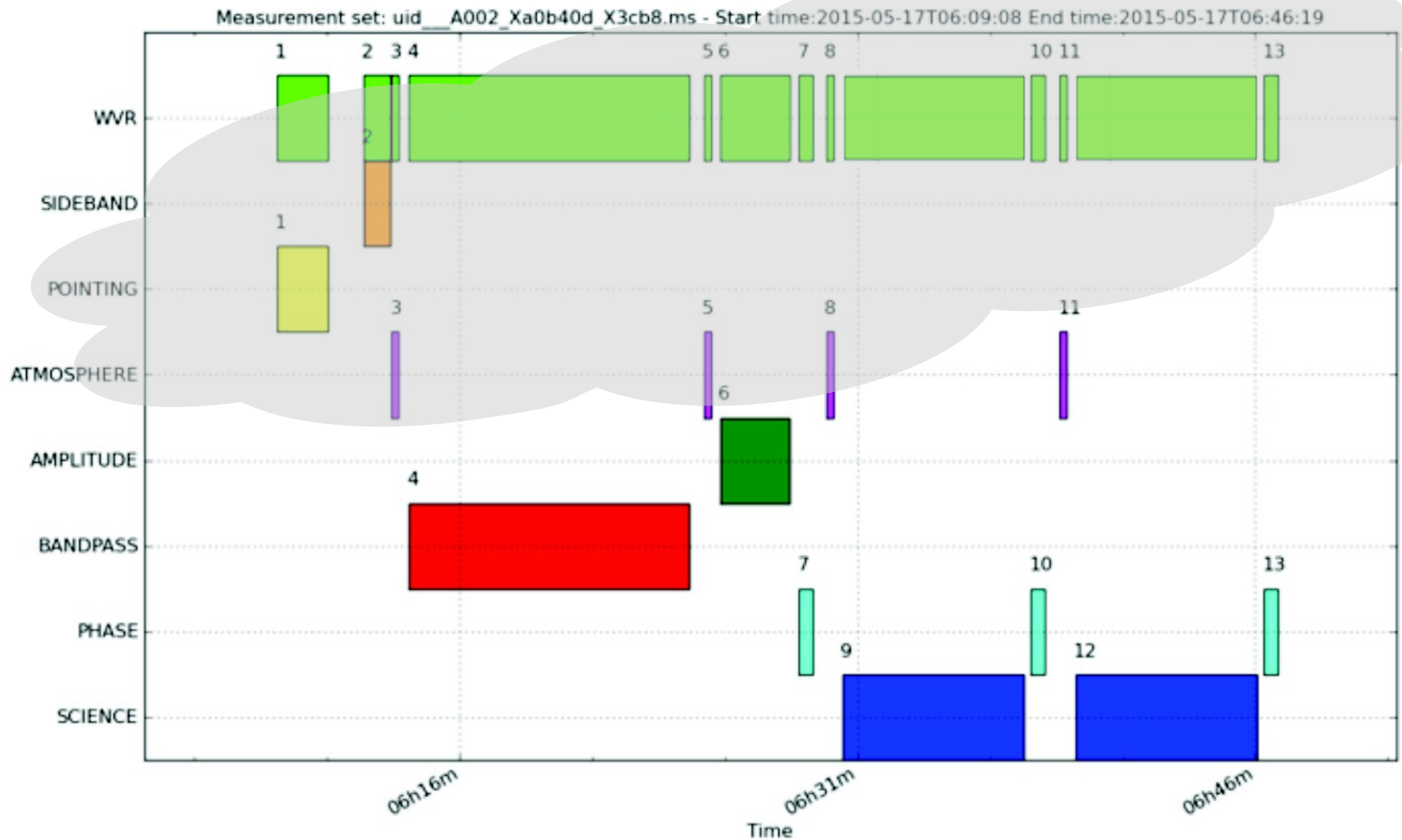
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Slides & contributions from
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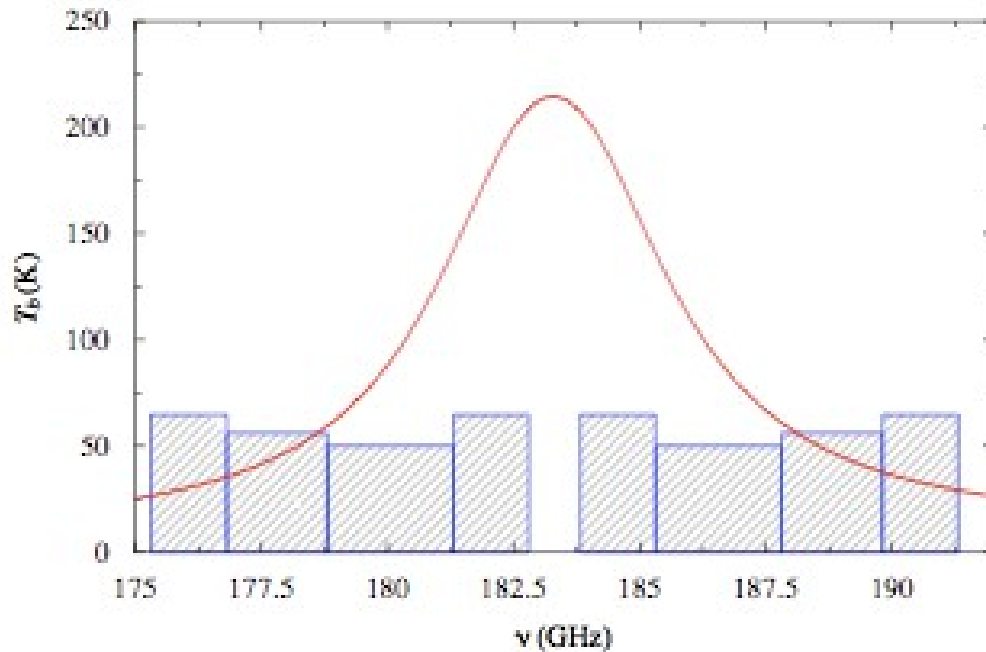
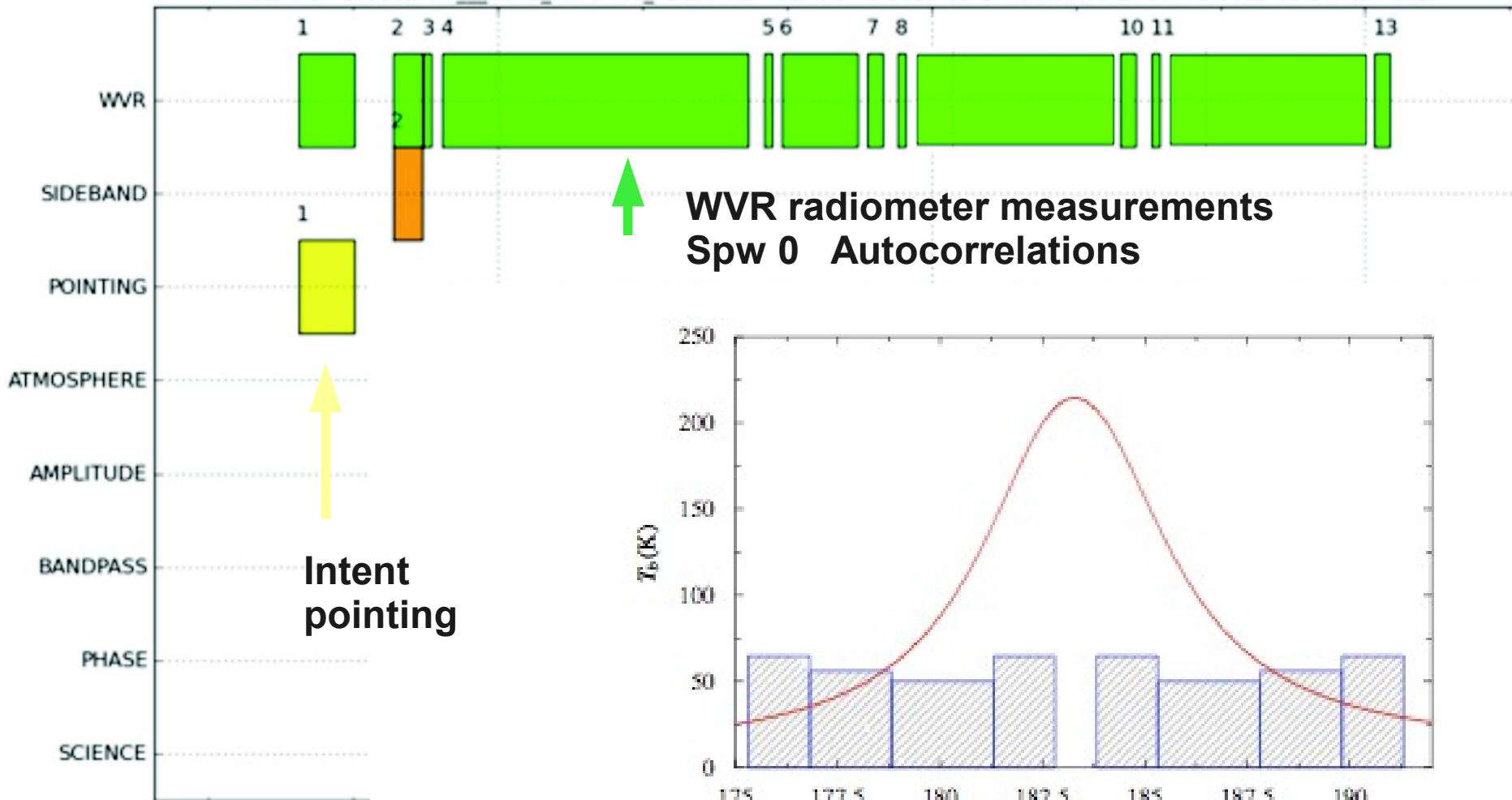
<http://www.alma.inaf.it/index.php/Courses>

Calibration in ALMA: typical observational strategy



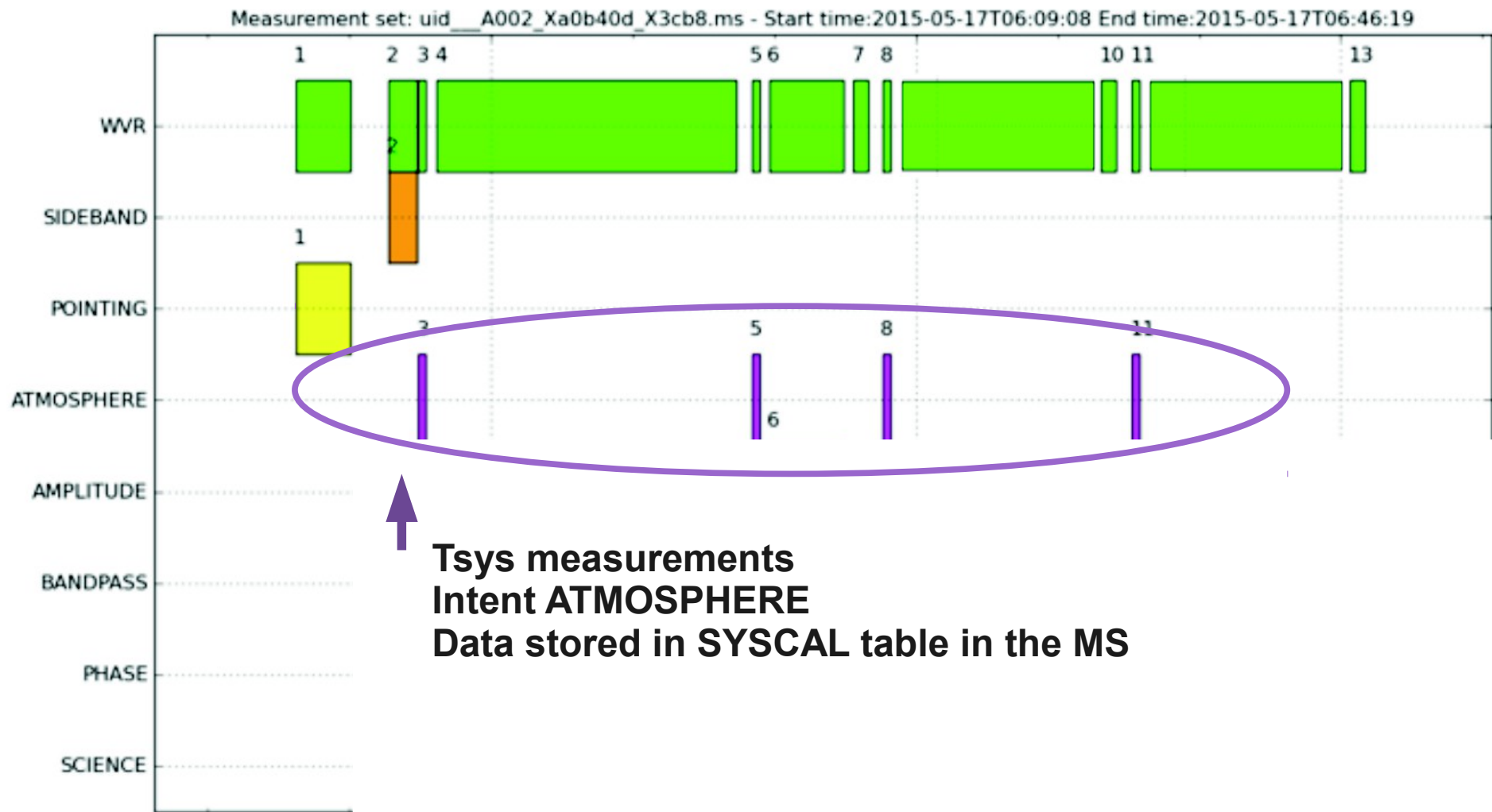
Calibration in ALMA: typical observational strategy

Measurement set: uid_A002_Xa0b40d_X3cb8.ms - Start time:2015-05-17T06:09:08 End time:2015-05-17T06:46:19



Calibration in ALMA:

Tsys calibration



Calibration in ALMA:

Tsys calibration

$$T_{\text{sys}} \sim T_{\text{atm}} (e^{\tau} - 1) + T_{\text{rx}} e^{\tau}$$

- ALMA front end are equipped with an Amplitude Calibration Device (ACD)



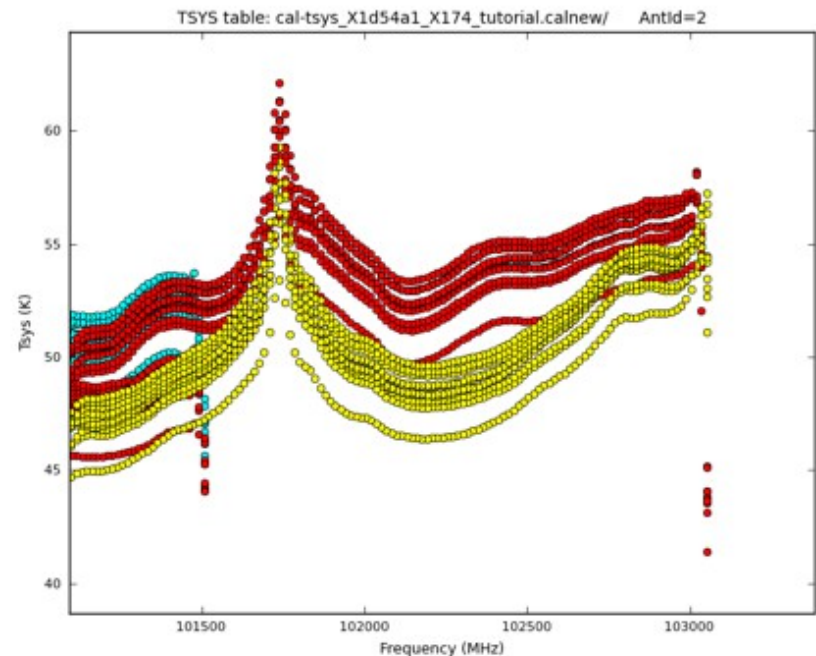
T_{sys} and T_{rx}
stored in SYSCAL table

- Tsys observations are taken **always** with the lower spectral resolution (128 channels per polarization)
- In principle, every scan could have a system temperature measurement.
At frequencies below 400 GHz, where Tsys are ~ constant over 10 min or 10 deg, measurements can be limited in time and among sources.

Calibration in ALMA:

Tsys calibration

- Assuming correlated data are in units of percentage correlation, multiplication by the Tsys will change the units in **Kelvin**.
- Inspecting Tsys tables is important to identify possible “bad” antennas which need to be flagged.



Calibration in ALMA: typical observational strategy

Scans on celestial sources
needed to calibrate observed visibilities

