

Scientific exploitation of the ALMA calibrator archive

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Papers

Monthly Notices
of the

ROYAL ASTRONOMICAL SOCIETY



MNRAS **478**, 1512–1519 (2018)

doi:10.1093/mnras/sty1173

Advance Access publication 2018 May 5

ALMACAL IV: a catalogue of ALMA calibrator continuum observations

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V. Galluzzi,^{3,4} M. Negrello,⁵ I. Baronchelli,⁶ J. Brand,¹ M. A. Zwaan,⁷ K. L. J. Rygl,¹
N. Marchili,⁸ A. Klitsch^{7,9} and I. Oteo^{7,10}

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MNRAS **00**, 1 (2019)

doi:10.1093/mnras/stz465

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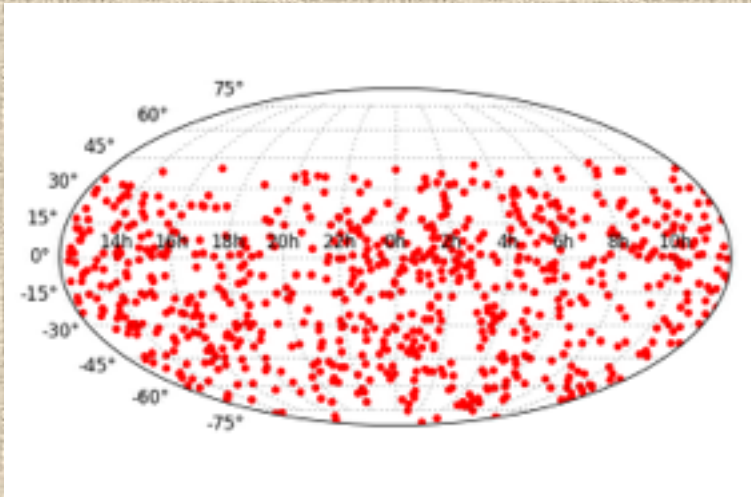
ALMA photometry of extragalactic radio sources

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M. Tucci,⁵ M. Massardi,¹ G. De Zotti,² M. Negrello⁶ and M. A. Zwaan⁷

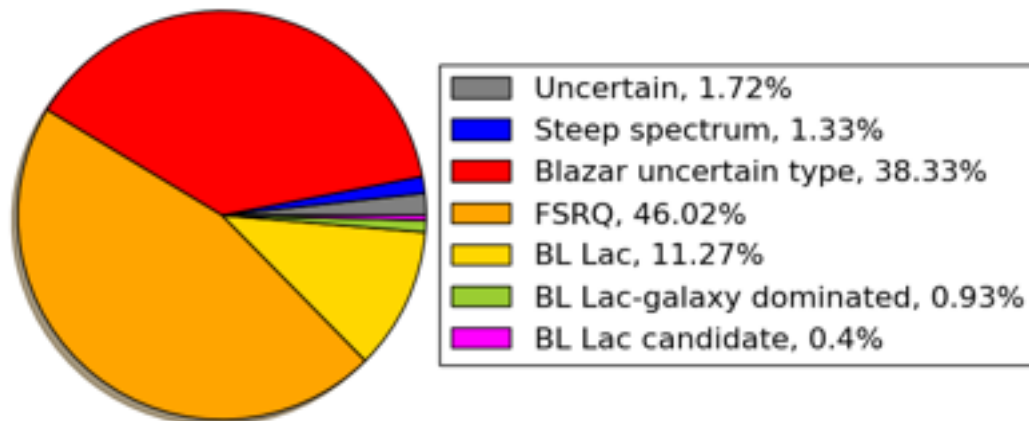
Calibrators

- ALMA uses bright compact radio sources as **calibrators** to fix the **flux density scale**, to determine the **bandpass response**, and to **calibrate amplitude and phase** of the visibilities of the science targets.
- Observations of calibrator sources (mostly bright point-like quasars) are made **for every science project**.
- Each calibrator is generally **observed several times**, in connection with different science targets, on different days, **in various ALMA bands and array configurations**.

The catalogue

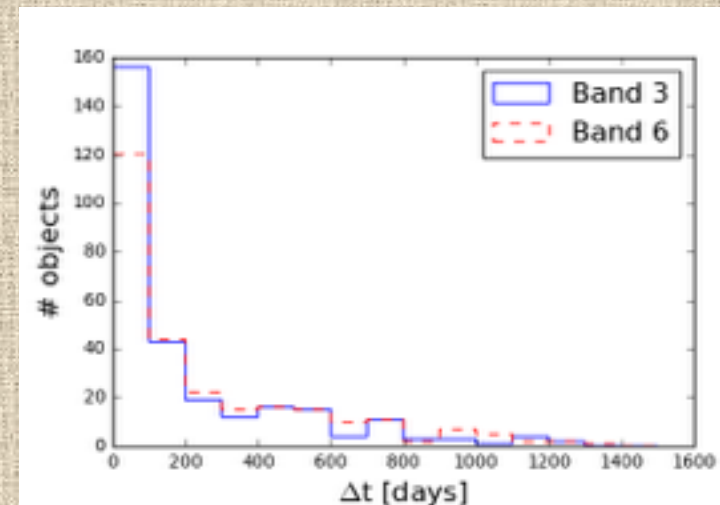
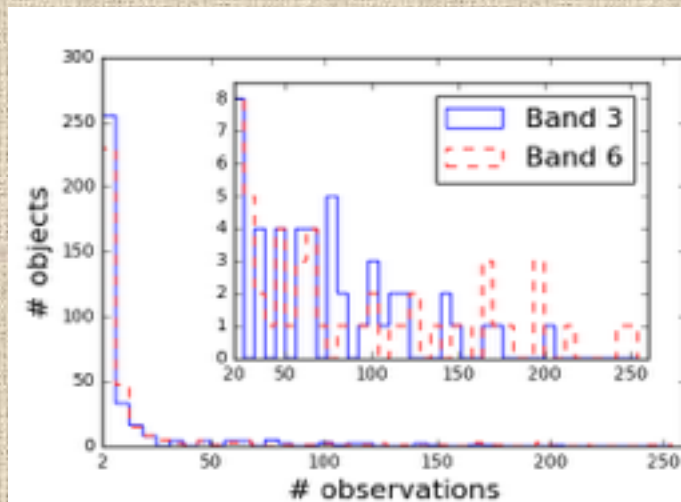
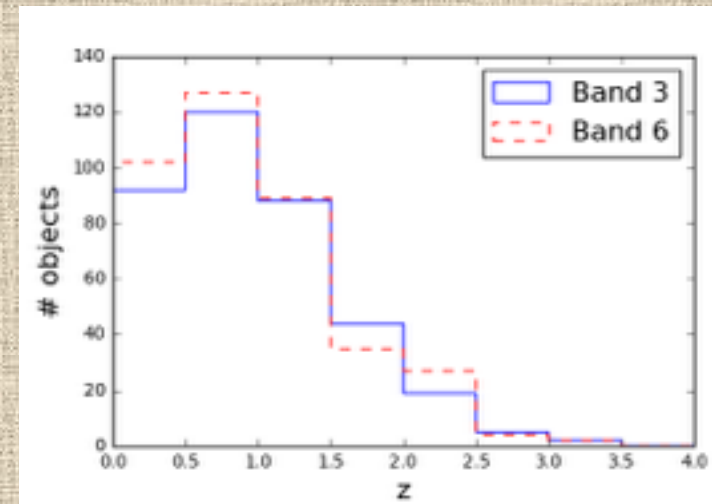
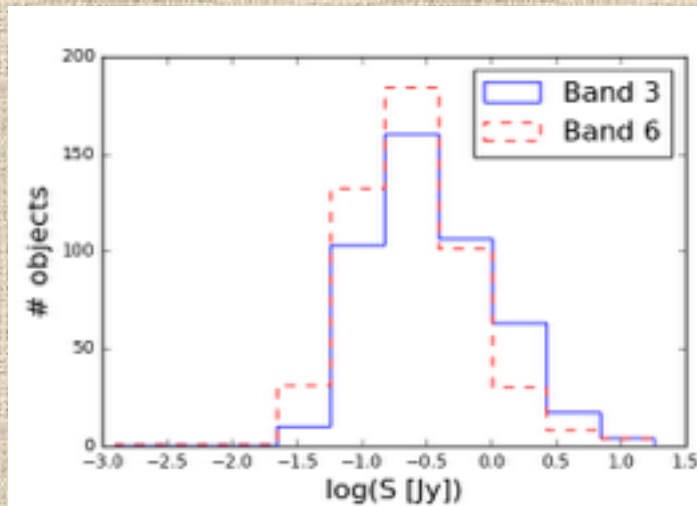


- **3364 calibrators** (May 2011 - July 2018)
- **47115 observations**

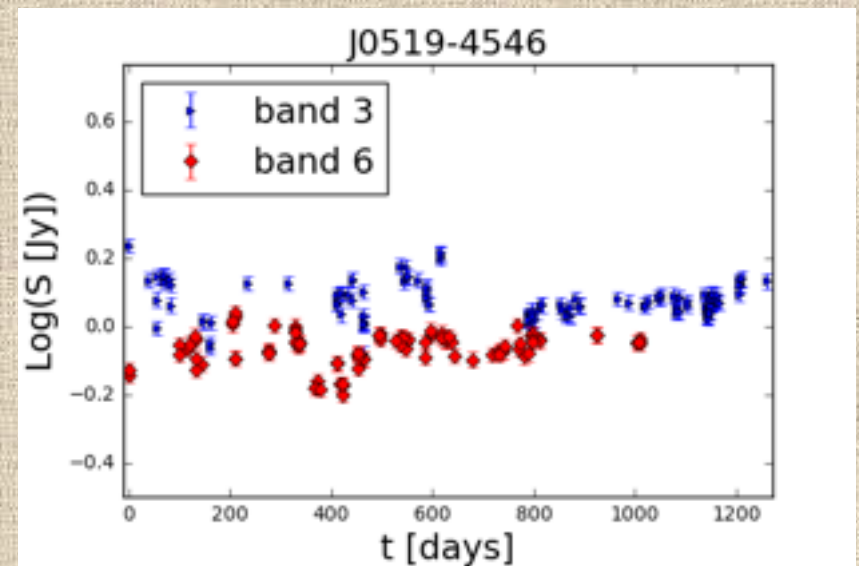
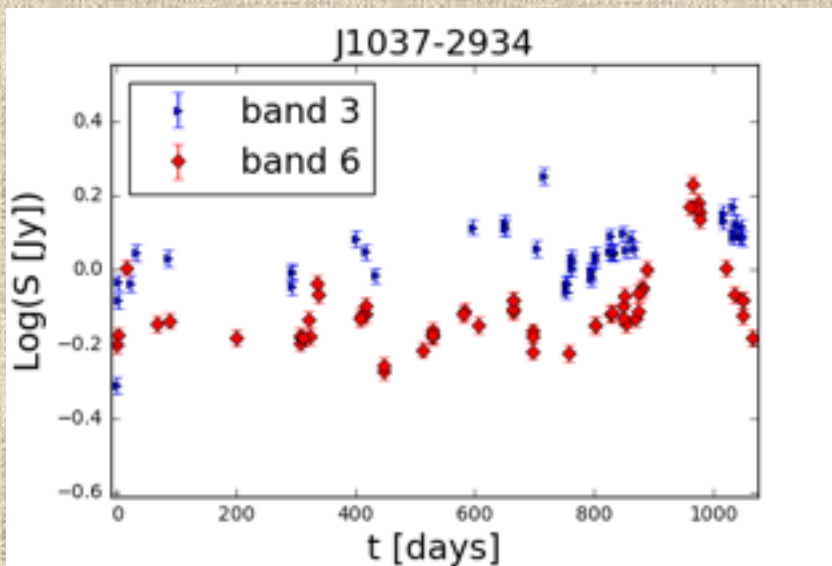


- Found **z** for **2245 sources** (67% of the total)
- 97% are **blazars**

Properties of the sample

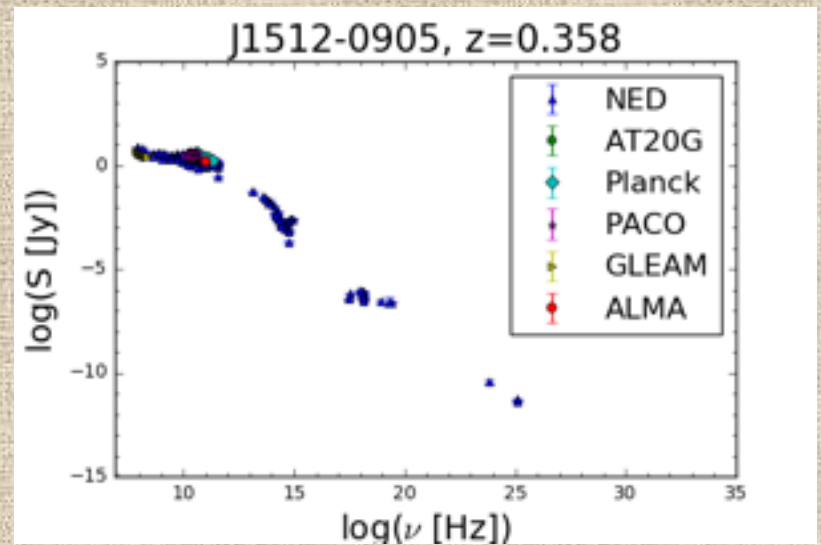
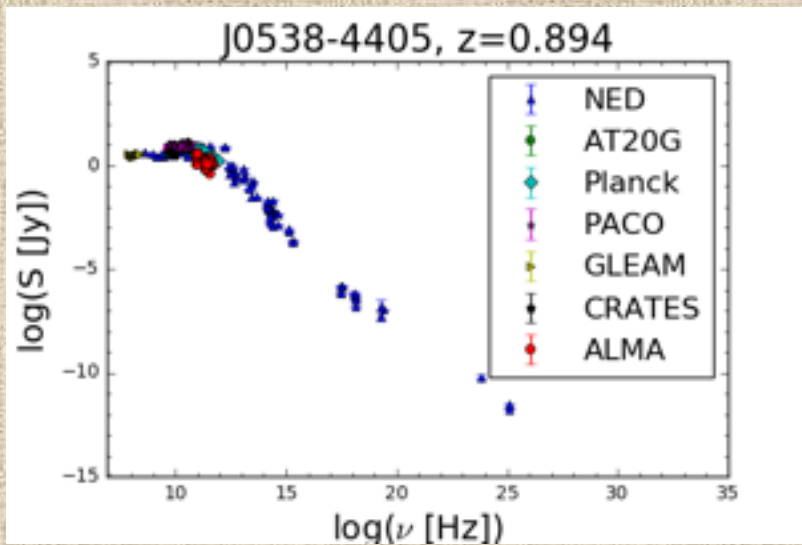


Light curves



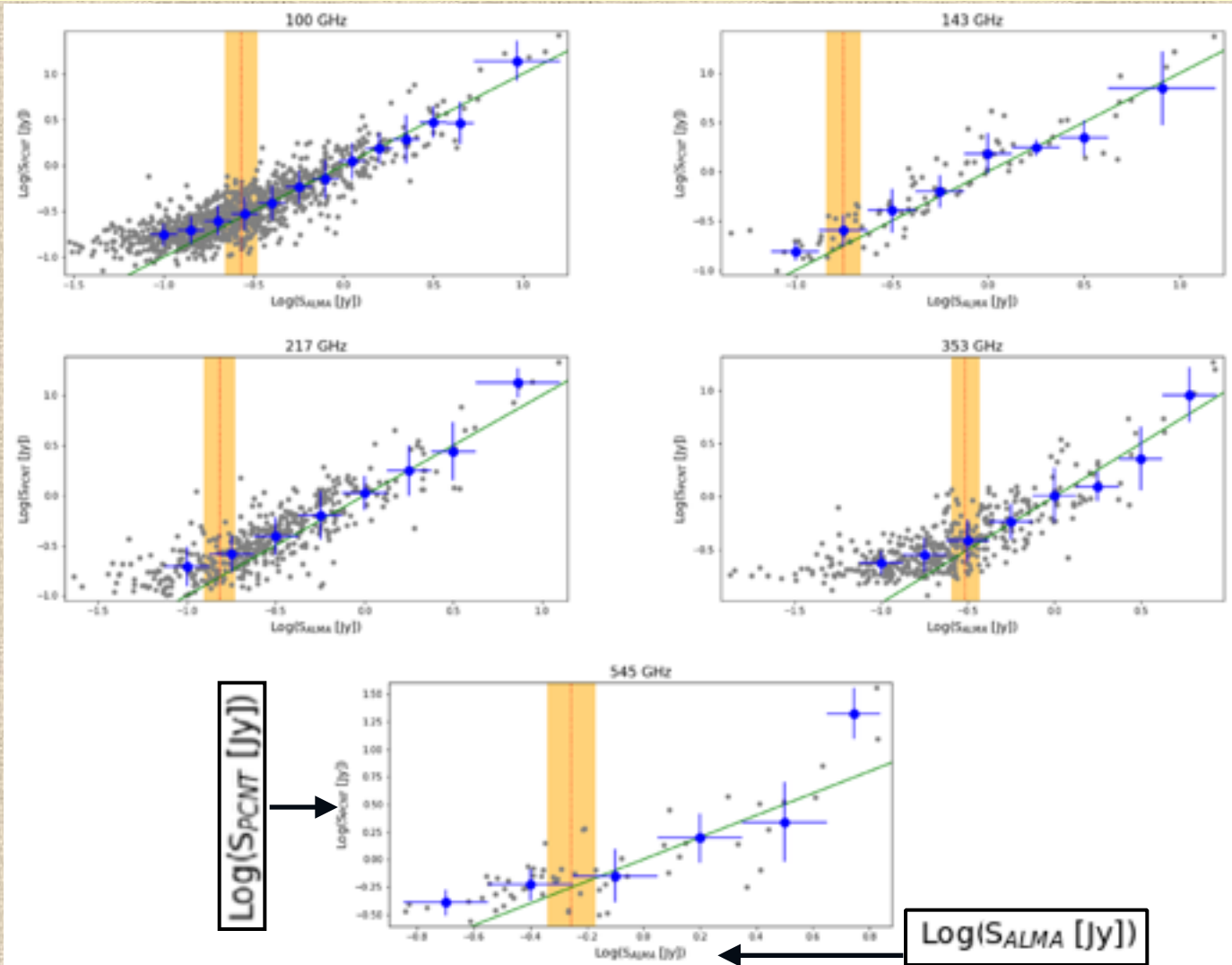
Systematic errors are consistent with an **ALMA calibration error** of about **5-6%** in band 3 and 6

SEDs

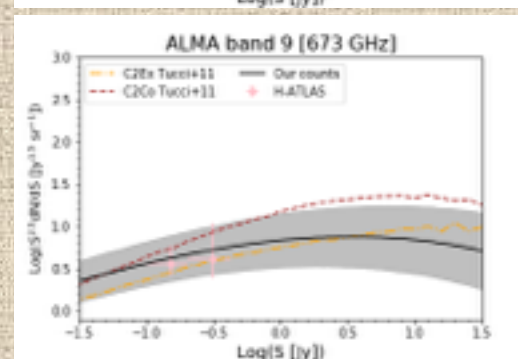
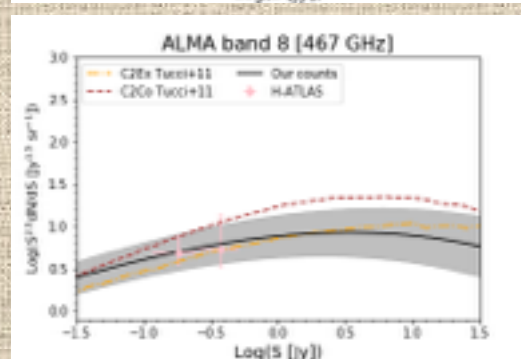
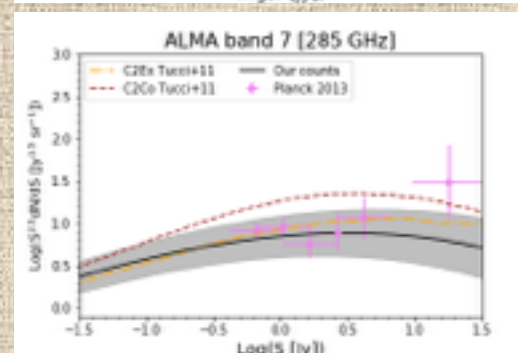
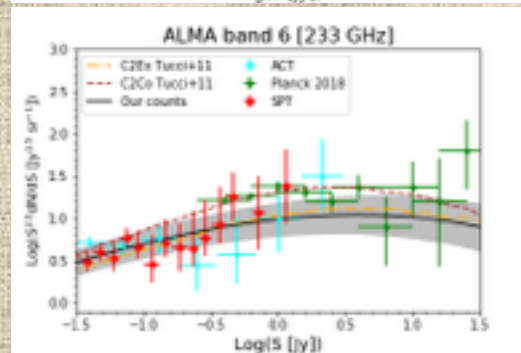
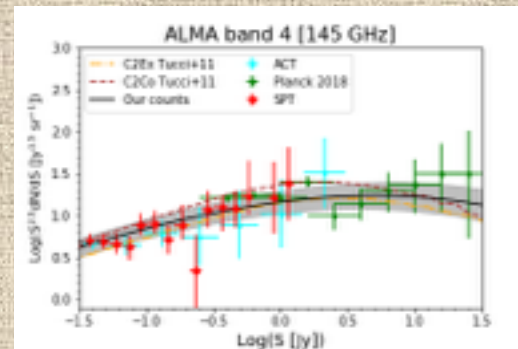
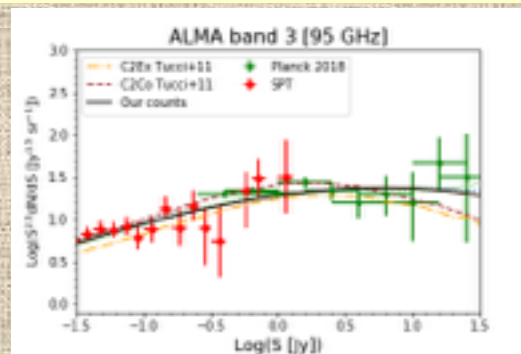


Global SEDs of our sources over 17 orders of magnitude in frequency.

Validation of new (PCNT) Planck catalog



Blazar number counts in the ALMA bands



Thanks for your attention!



Catalogue and tools in the new website of the Italian ARC: <http://arc.ia2.inaf.it>