

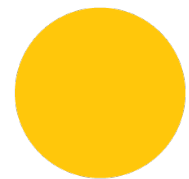
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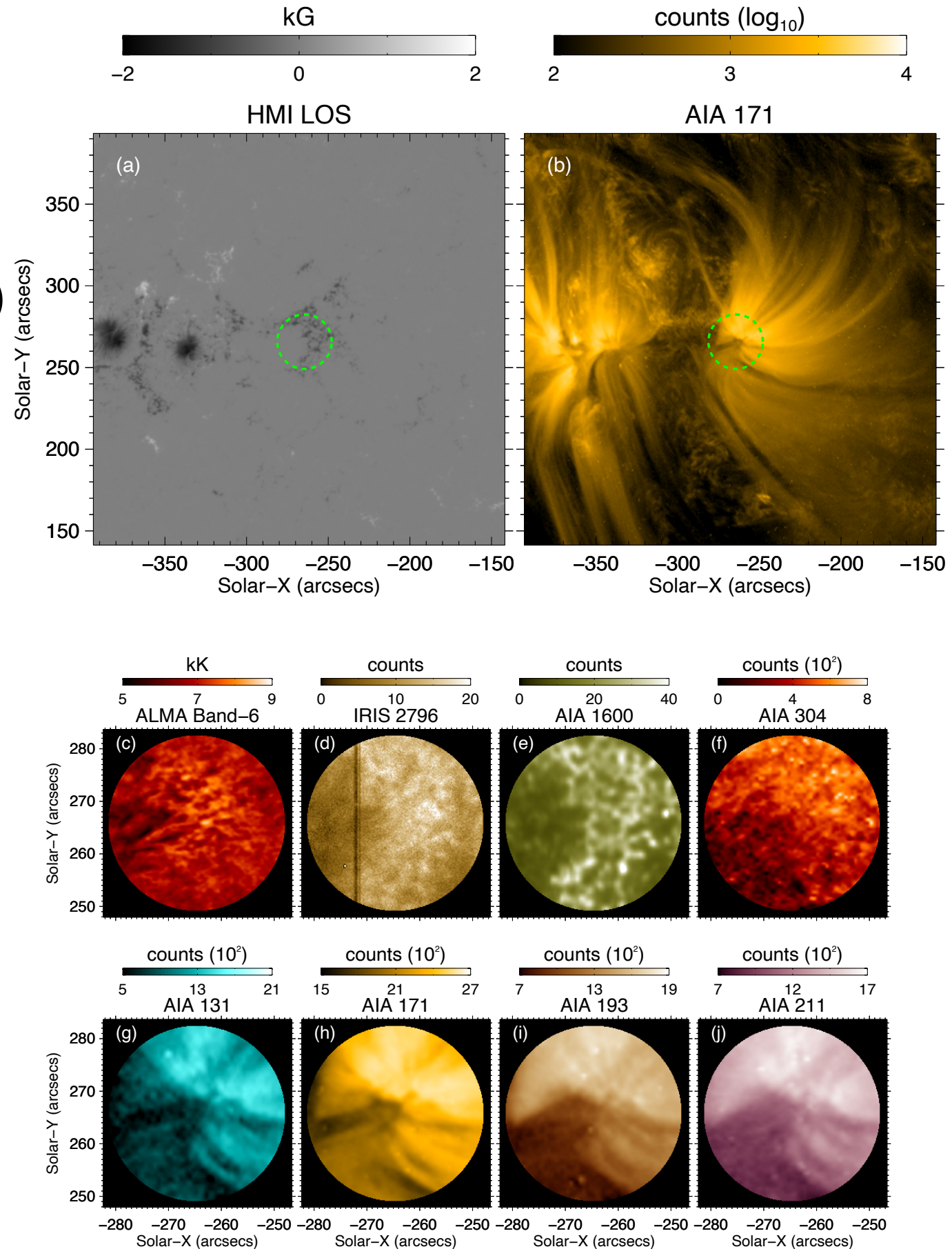
Power distribution of oscillations in plage region: Joint observations from ALMA, IRIS and SDO

Nancy Narang, K Chandrashekhar, S Jafarzadeh, B Fleck, M Szydlarski, S Wedemeyer

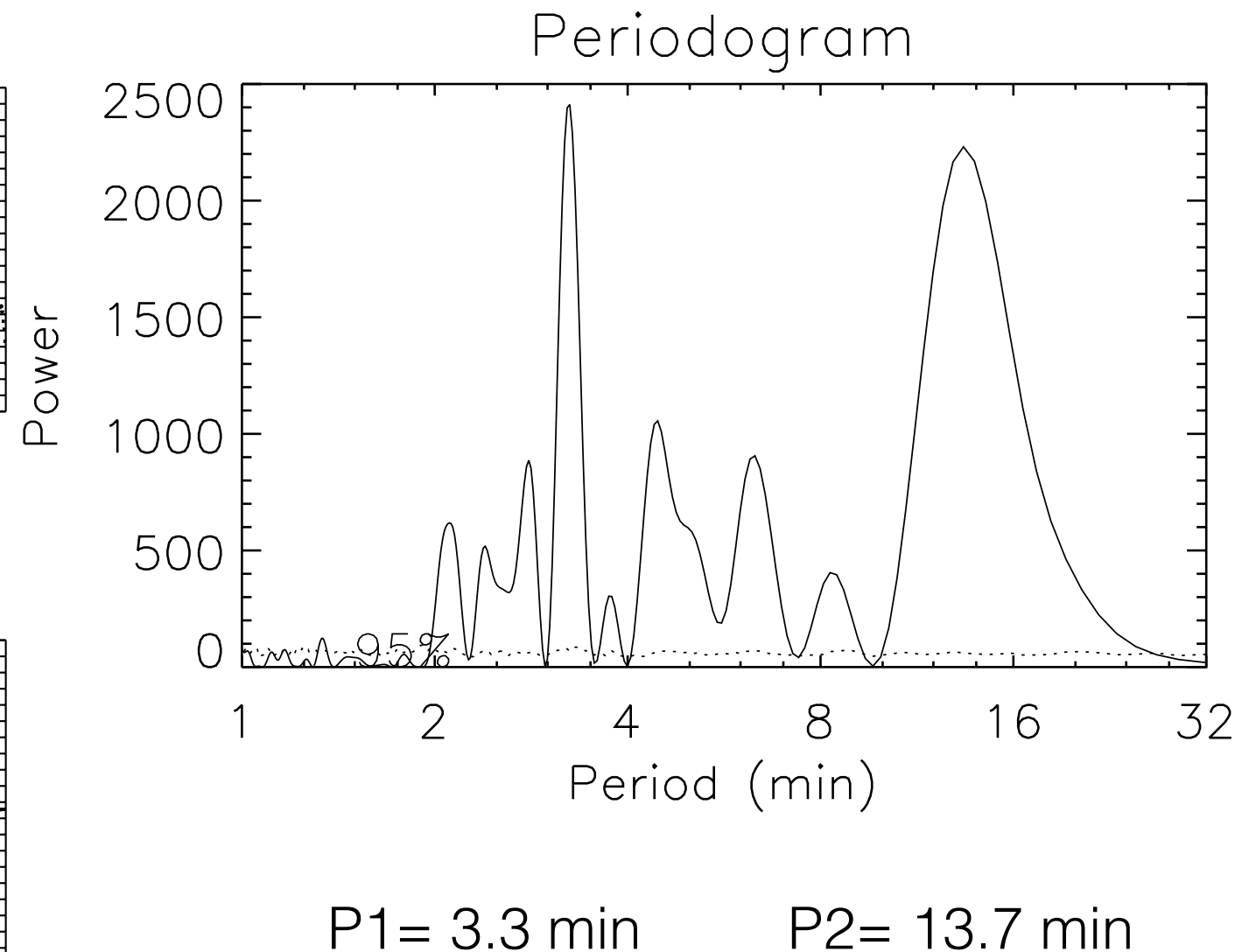
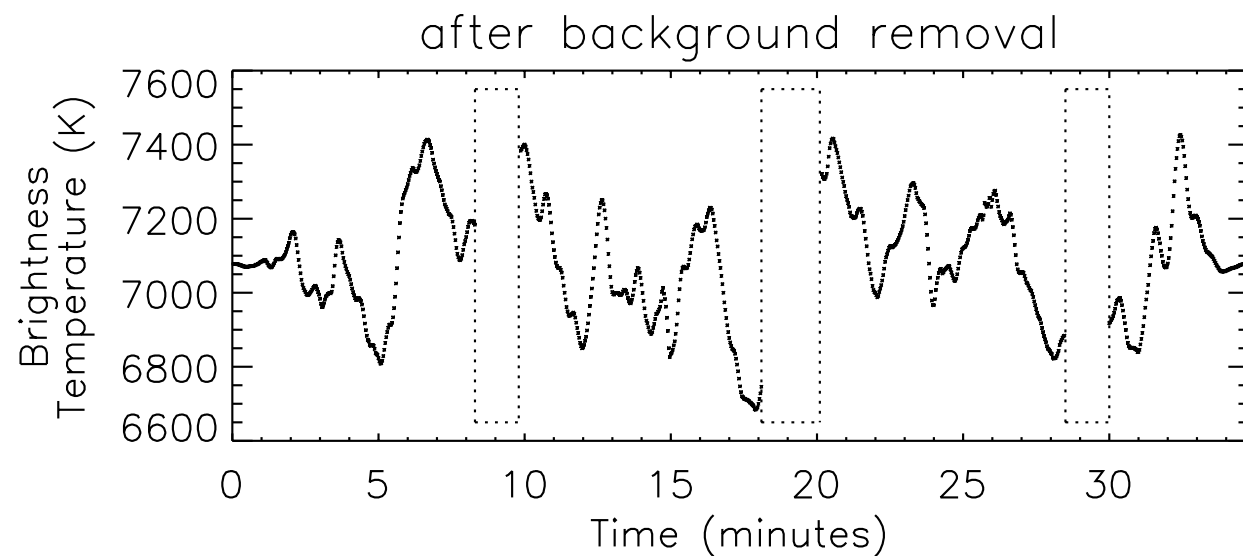
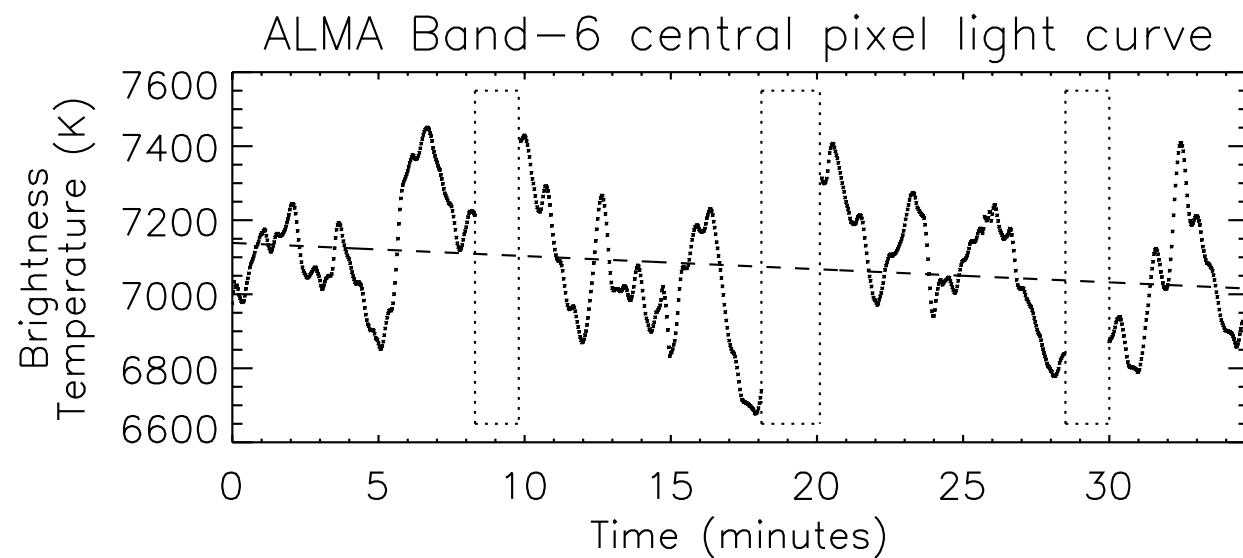
Oslo, 8 September 2021

Observations

- Plage region (in NOAA AR12651)
- ALMA Band-6 (239 GHz or 1.25 mm)
- 2017 April 22 15:59-16:34 UT
- $(x,y)=(-265'',265'')$, $0.14''$, 2-sec
- HMI LOS & AIA 171 for context
- IRIS SJI 2796
- AIA 1600, 304, 131, 171, 193 & 211
- Association of ALMA oscillations

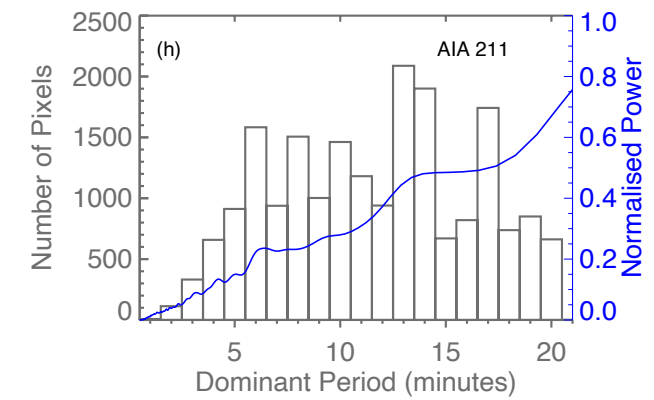
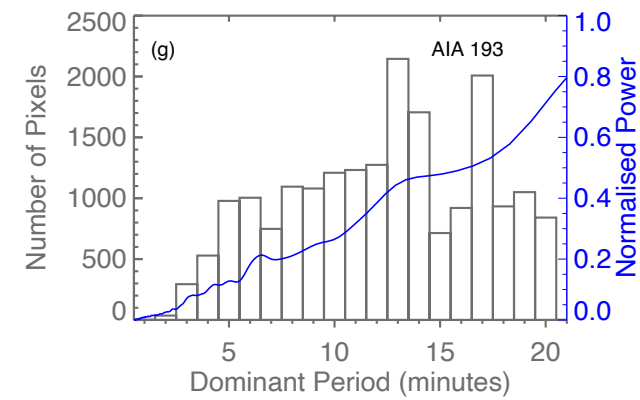
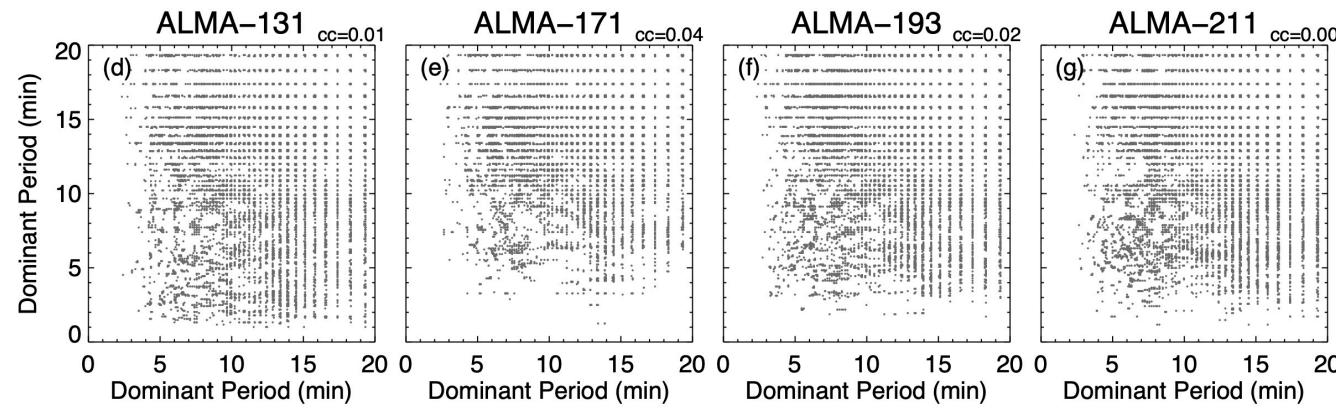
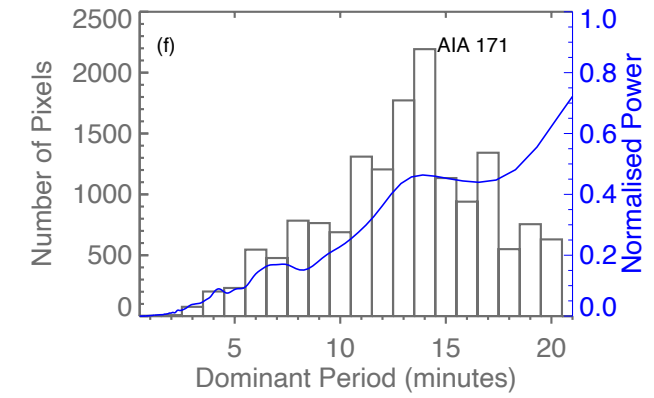
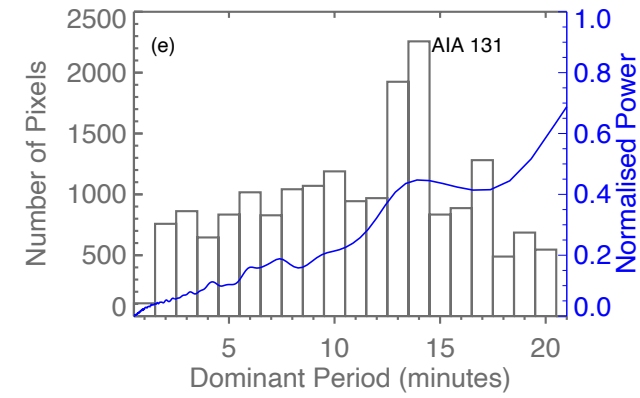
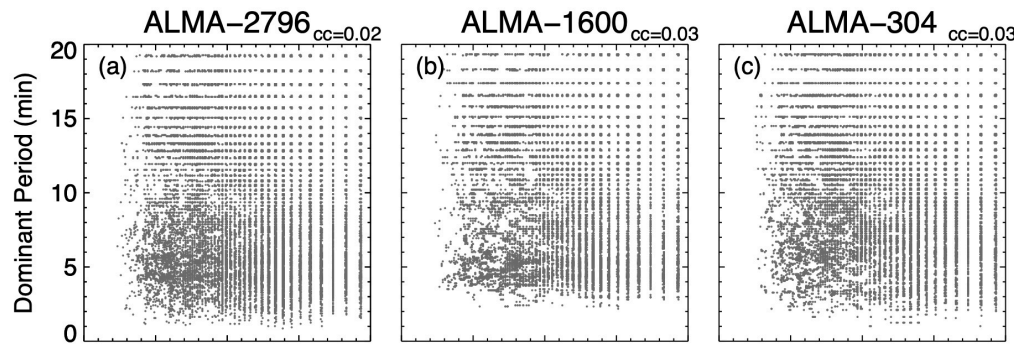
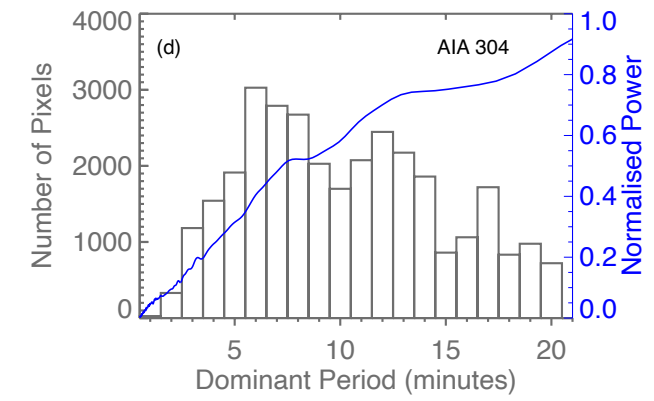
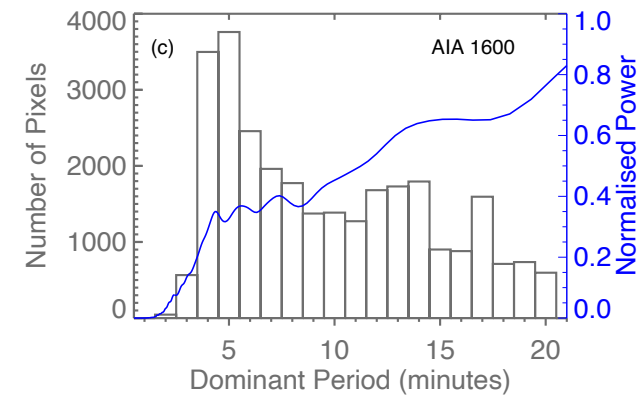
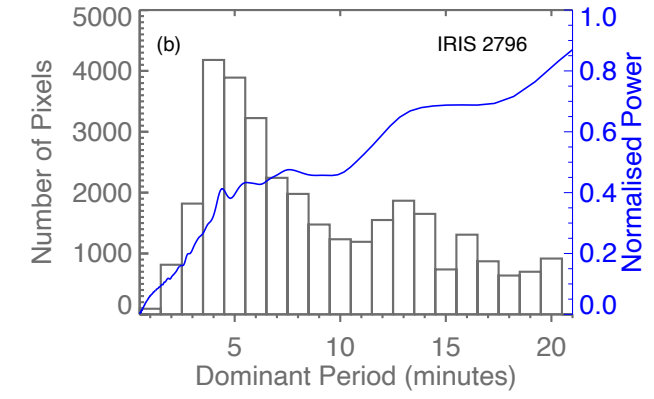
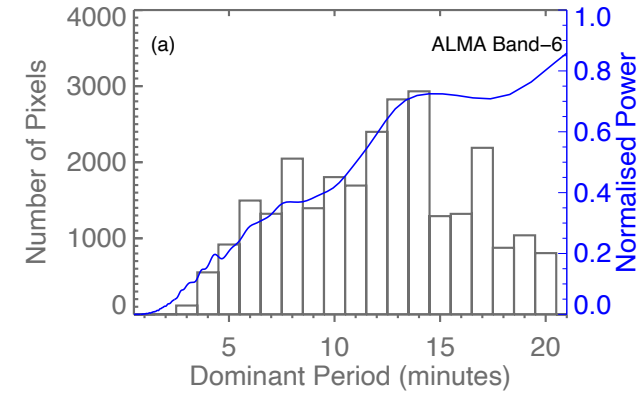
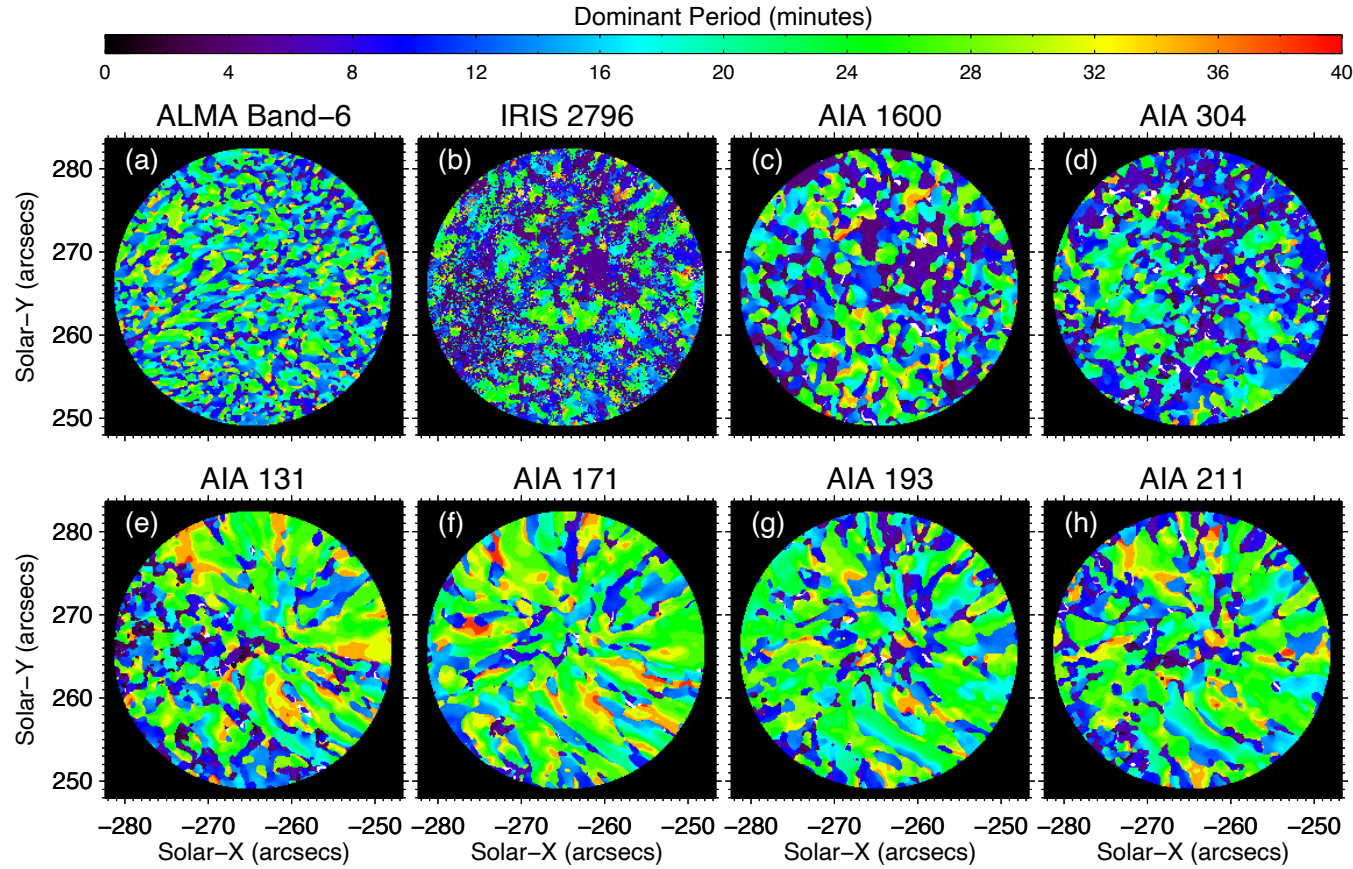


Lomb Scargle

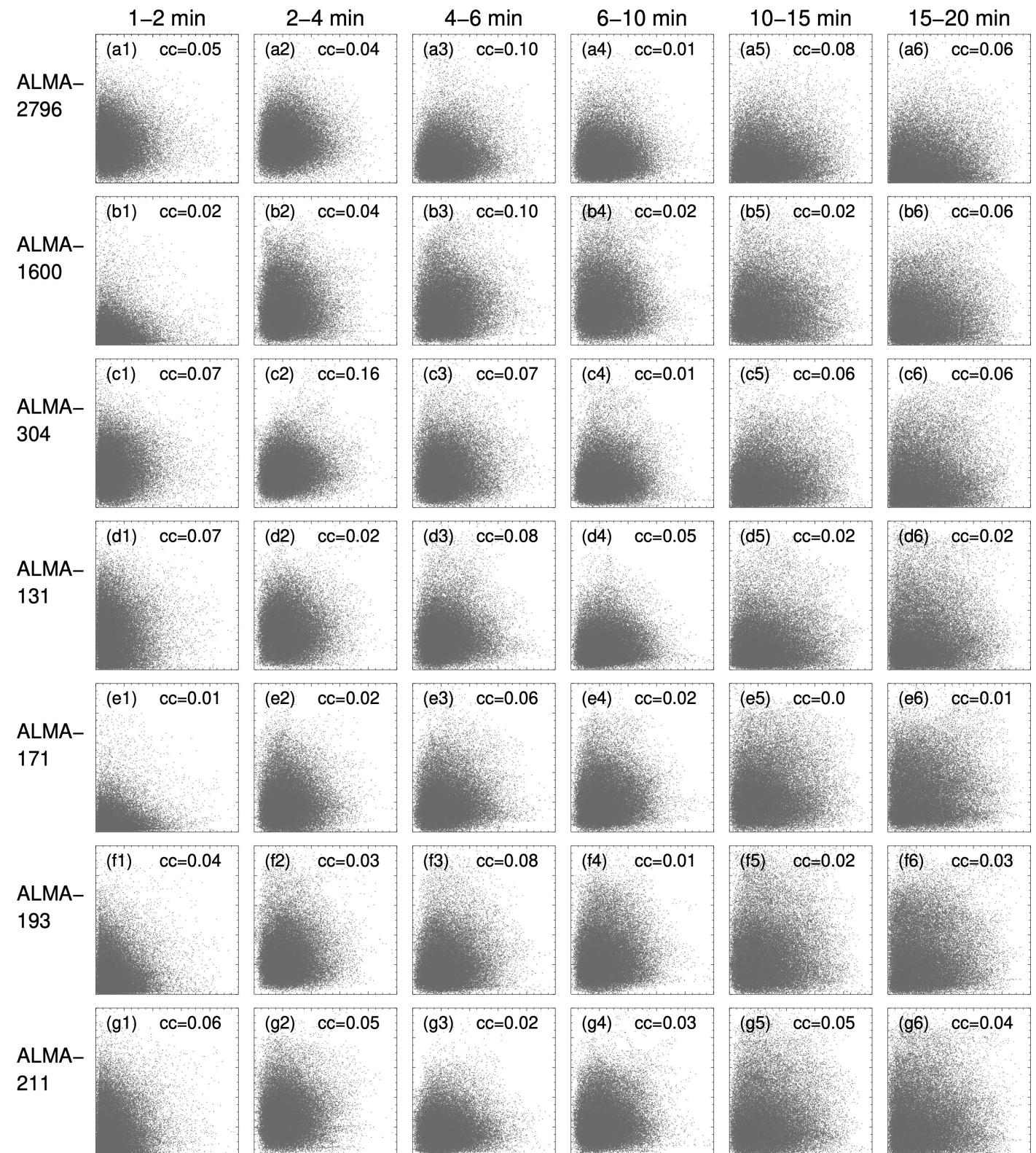
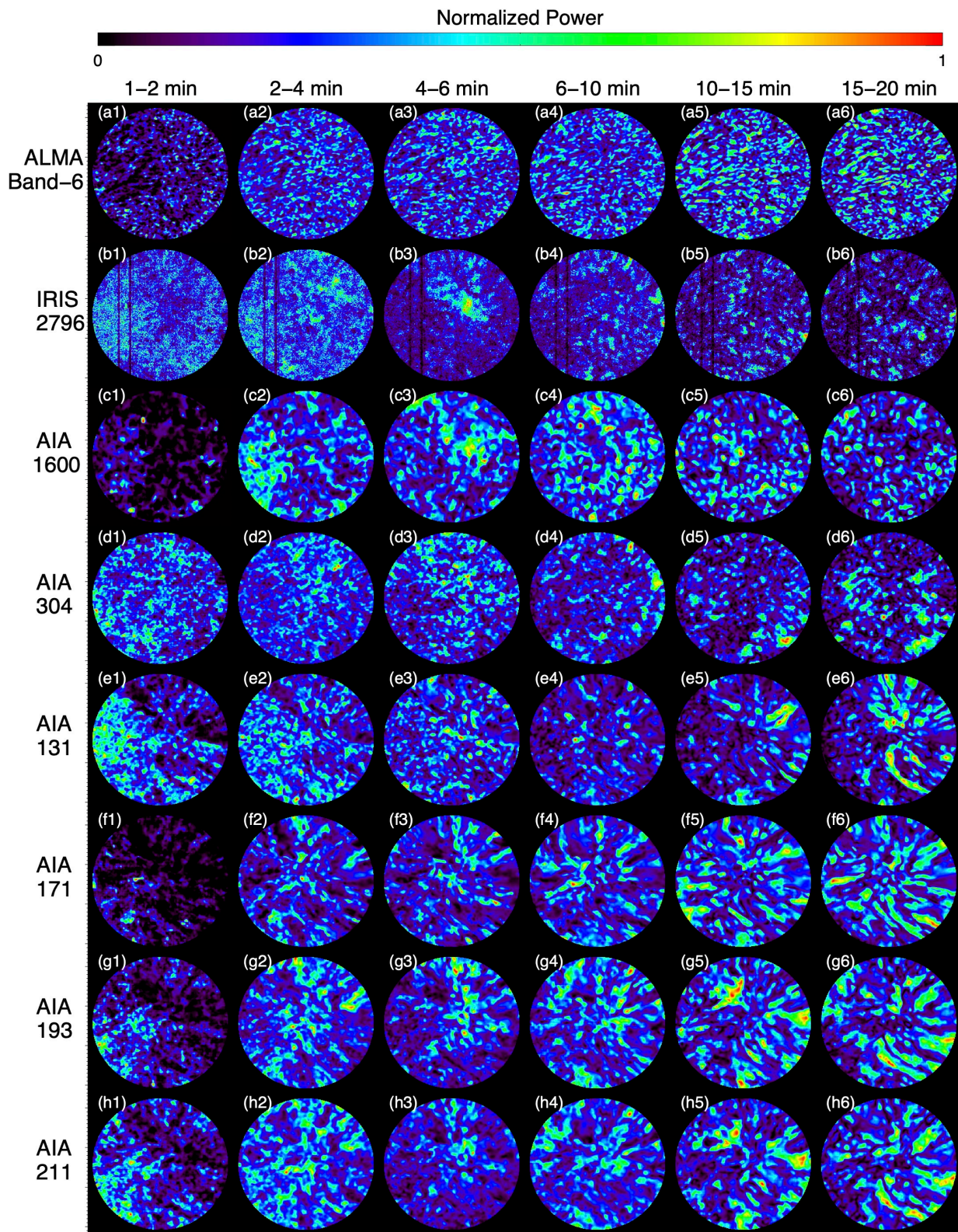


- LS transform suitable for observation times are unevenly spaced.
- 4 blocks of approximately 8–9 min duration each, with gaps of 1.5–2 min.
- Gaps are present due to calibration of the antennas.

Dominant Period



Power Maps



Results

- No significant association of ALMA oscillations with IRIS and AIA oscillations.
- ALMA dominant period maps and power maps are uncorrelated with others.
- Non-association of ALMA oscillations with those of IRIS and AIA be attributed to significant variations in the height of formation of the millimeter continuum observed by ALMA.
ALMA maps the brightness temperature, in contrast to the intensity observations by IRIS and AIA.
- Very different intrinsic nature ALMA oscillations as compared to the IRIS and AIA oscillations.