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CMB foregrounds for B-mode studies
Tenerife, October 15th 2018
The Atacama Cosmology Telescope

ACT ‘MBAC’
Temp in south and equator at 148/218 GHz over 600 deg$^2$

ACTPol
Temp + Pol at 90/150 GHz over 3000 deg$^2$

Advanced ACTPol
Temp + Pol at 5 frequencies over 40% of the sky


Thornton et al (2016)
ACT: highlights

Cosmology from the damping tail and lensing


SZ clusters and sources


Extragalactic emission from PS

Dunkley++2013
ACTPol [s13]

S13
PA1 @ 150 GHz

Patches: D1, D2, D5, D6

Figure: S. Aiola
Naess++2014

ACTPol [s13]

11-17 µK-arcmin map noise
ACTPol [s13+s14]

S13
PA1 @ 150 GHz
Patches: D1, D2, D5, D6

S14
PA1/PA2 @ 150 GHz
Patches: D56, BOSS-N

Figure: S. Aiola
ACTPol [s13+s14]

The color scale is ±250μK in T and ±25μK in P

Figures: S. Naess
ACTPol[s13+s14]: extra highlights

**Lensing science**

Halo lensing

Lensing convergence spectrum

Lensing from cross-correlations with CIB

Cross-correlations with radio galaxies


**SZ clusters and sources**

De Bernardis++2017, Schaan+ 2015, Hilton++2018, Myatake++2018

**Non Gaussianity**

Coulton++2017

All data products available on LAMBDA
Figure: S. Aiola
ACTPol \([s13+s14+s15]\) polarization

Choi++, Aiola++ to appear
ACTPol [s13+s14+s15] cosmology

Forecasts for next release: using actual maps but errors might be bigger

Figure: S. Aiola
Advanced ACTPol

Figure: S. Aiola  Map: S. Naess

S16: 18000 deg² mapped

S16
- PA2 @ 150 GHz
- PA3 @ 90 / 150 GHz
- HF @ 150 / 220 GHz

S17
- MF @ 90 / 150 GHz
- MF @ 90 / 150 GHz
- HF @ 150 / 220 GHz

S18
- LF @ 28 / 41 GHz
- MF @ 90 / 150 GHz
- HF @ 150 / 220 GHz

+19-20-21!
Thank you