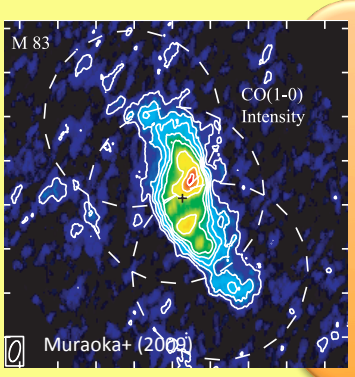
Did you know?

the Atacama Large Millimeter/submillimeter Array (ALMA) can…

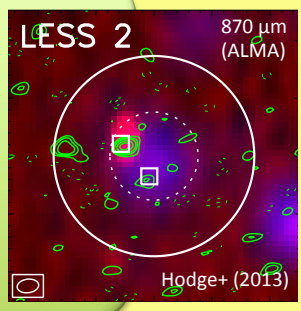


… resolve molecular clouds in a nearby, star forming galaxy:

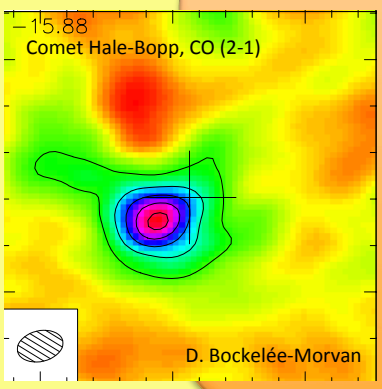
	in Cycle 2
6 pc clouds of excited CO(J=3-2) gas across the central 400 pc of M83	< 2 hours
30 pc clouds of dense HCN(J=1-0) gas in the central 1.5 kpc of M83	25 minutes
create an HCN(J=1-0) mosaic of the full M83 bar with 30 pc resolution	2.5 hours

… detect the ISM in high redshift galaxies:

	in Cycle 2
dust emission in a "normal" 10^{11} $L_\odot$ galaxy between z=1 and z=6	5.6 hours
major cooling [CII] line in a lensed Milky Way galaxy at z=4.2	30 minutes
dust emission in a 10^{12} $L_\odot$ luminous infrared galaxy out to z=10	7 minutes



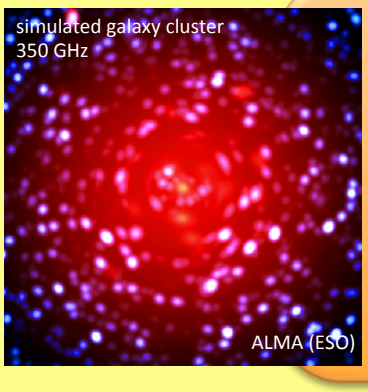
… reveal the characteristics of Solar System objects:



	in Cycle 2
obtain wind patterns in the atmosphere of Mars with 300 km resolution	30 minutes
trace the atmospheric water content of Venus using HDO lines	10 minutes
detect volatiles (HCN, CH_3OH, H_2CO, CS, and HNC) on active comets	50 minutes
measure Kuiper Belt Object sizes from their thermal emission	1 hour

… survey Galactic clouds and star forming regions:

	in Cycle 2
measure the polarization of dust in 30 protostars in a single star forming region	2 hours
detect thousands of lines over 60 GHz with < 1 km/s resolution toward Orion-KL	10 minutes

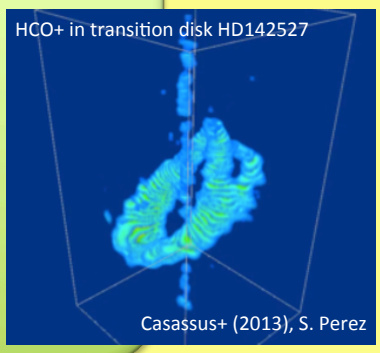


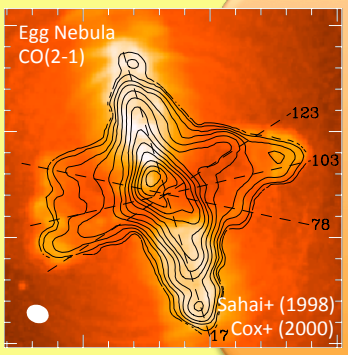
… trace the formation of galaxy clusters, cosmic structure:

	in Cycle 2
characterize merger shocks in cluster gas with the Sunyaev-Zel'dovich Effect	1.5 hours
measure the bulk cluster Sunyaev-Zel'dovich Effect in high-z clusters	3 hours
survey clustering in a sample of 23 Lyman-α Blobs (LABs) at z=3.1	< 1 hour

… reveal the nature of planetary disks around nearby stars:

	in Cycle 2
resolve the "snow line" in the disk around the T Tauri system HD 163296	15 minutes
measure dense gas flows across gaps in protoplanetary disks	15 minutes
detect a dust disk gap induced by a Jupiter mass planet at 120 pc	2 hours
image full debris disk (dense clumps in disk) of ε Eri with 1 AU resolution	17 (3) hours



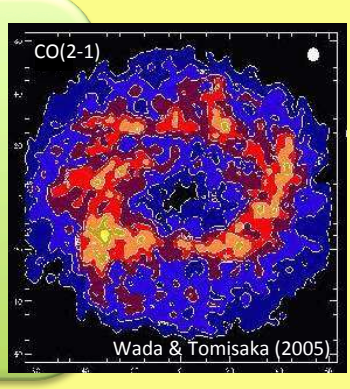


… measure stellar activity from low to high mass stars:

	in Cycle 2
image molecular outflows from pre-planetary nebulae	5 minutes
investigate heating mechanisms of red giant stars	2 minutes
detect z=3 (z=10) GRB afterglow two days after the burst	11 minutes (2.6 hours)

… study black holes and their environments, near and far:

	in Cycle 2
measure black hole mass of NGC 4526 from molecular gas kinematics	1 hour
infer gas properties in the host galaxy of an obscured z=2.8 quasar	20 minutes
understand the energetics of flares from Sagittarius A*	2 minutes



Integration time estimates are on source integration times (no calibration) calculated with the ALMA exposure time calculator:
https://almascience.nrao.edu/proposing/sensitivity-calculator
More information about the assumptions and setups for each project can be found here: https://science.nrao.edu/facilities/alma/didyouknow