Press Conference

The Caltech Submillimeter Observatory

2009 April 30

CSO's Scientific Achievements

Over 23 Years of Operation

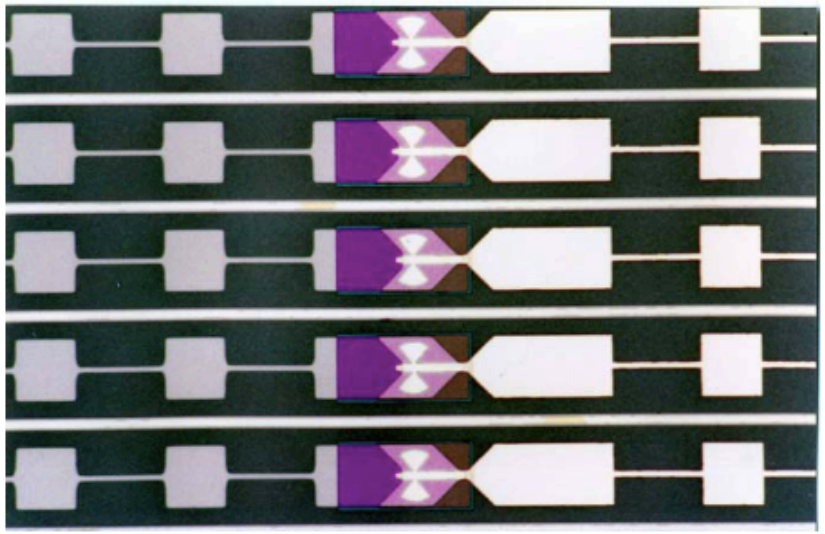
Since 1986

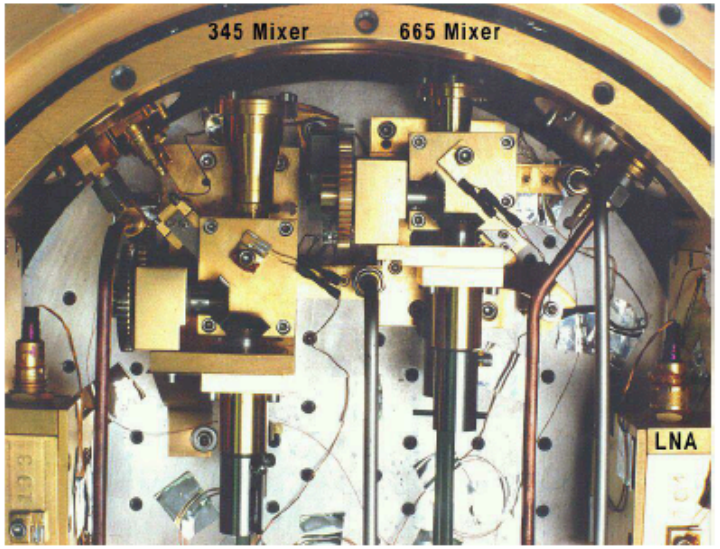
Development of Superconducting-Tunnel-Junction

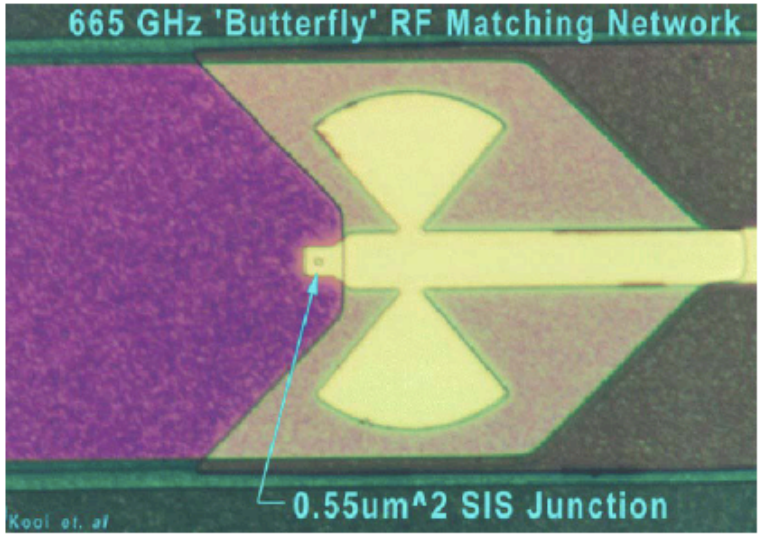
- Development of superconducting-tunnel-junction detectors for radio astronomy, now commonly used on ground- and space-based radio observatories such as ALMA, CARMA, and Herschel.

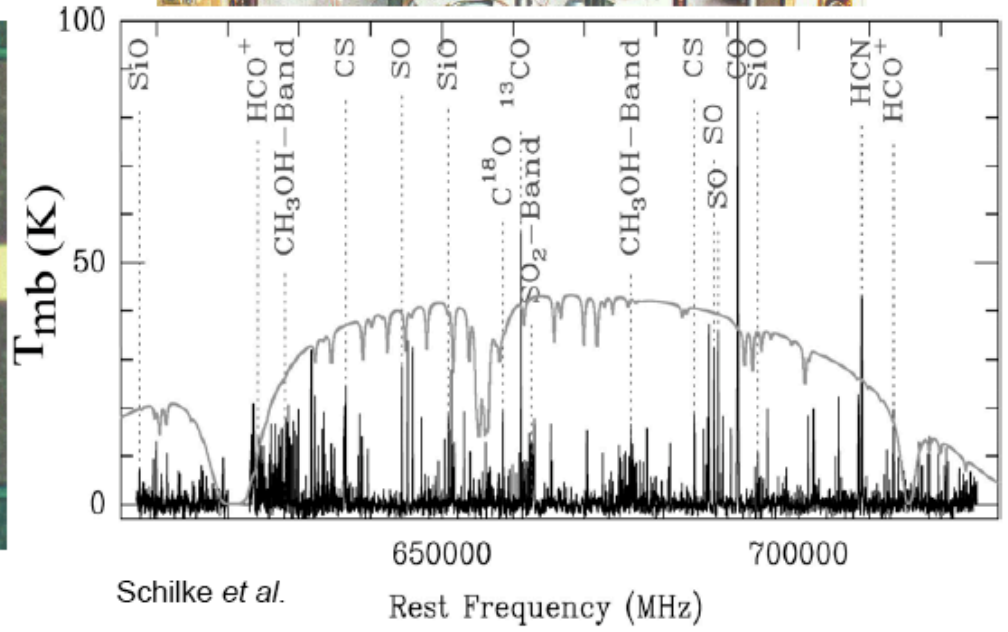
The quest for higher frequencies: 600-720 GHz (ca 1995)

J.W. Kooi, C. K Walker, H. G Leduc, P. L. Schaffer, T. G. Phillips





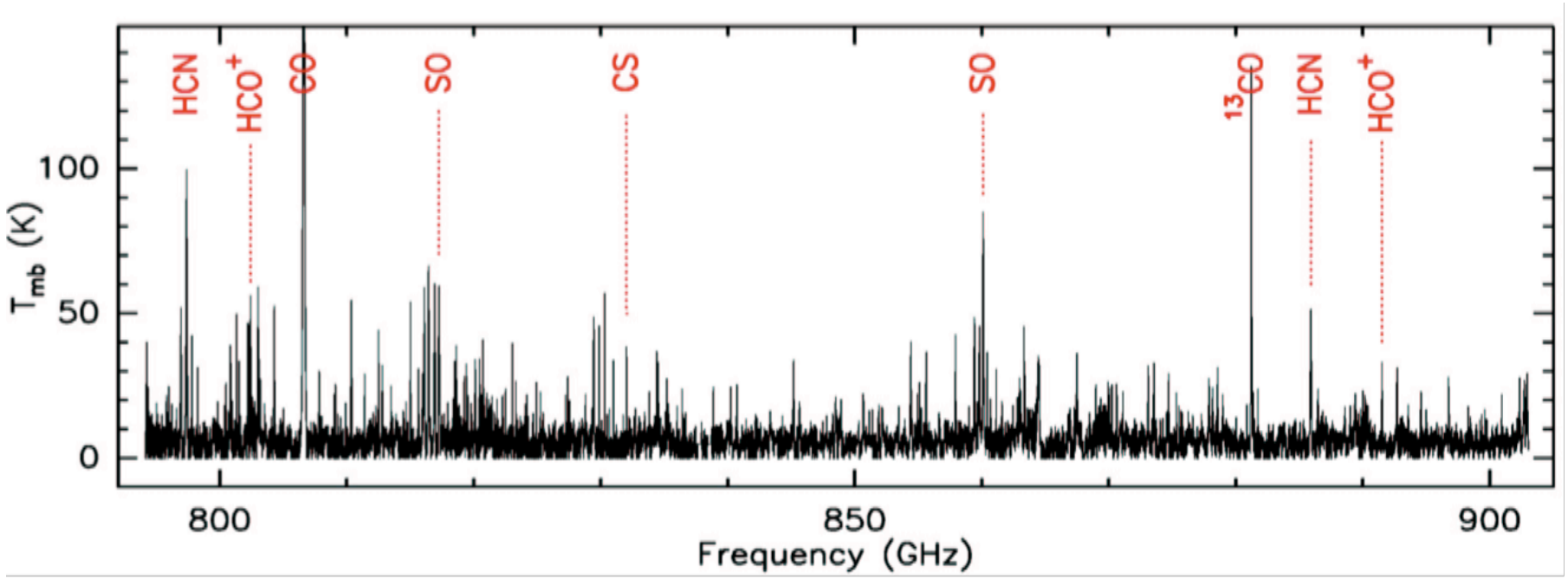




Schilke *et al.*

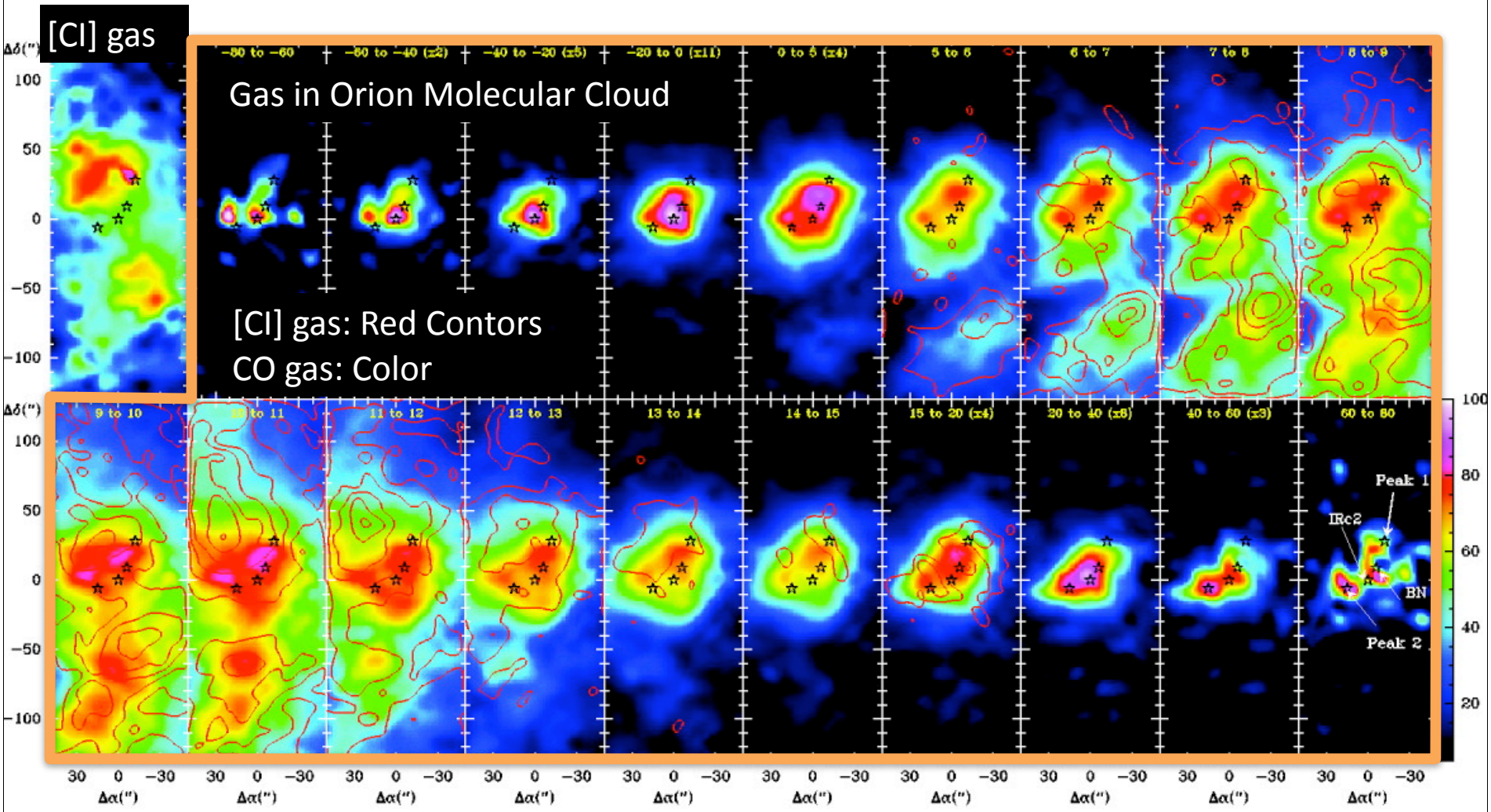
Submillimeter Line Forest

- Detection of the submillimeter "line forest", using the line survey technique, as well as of key hydride molecules, which has led to improve understanding of the interstellar chemistry.



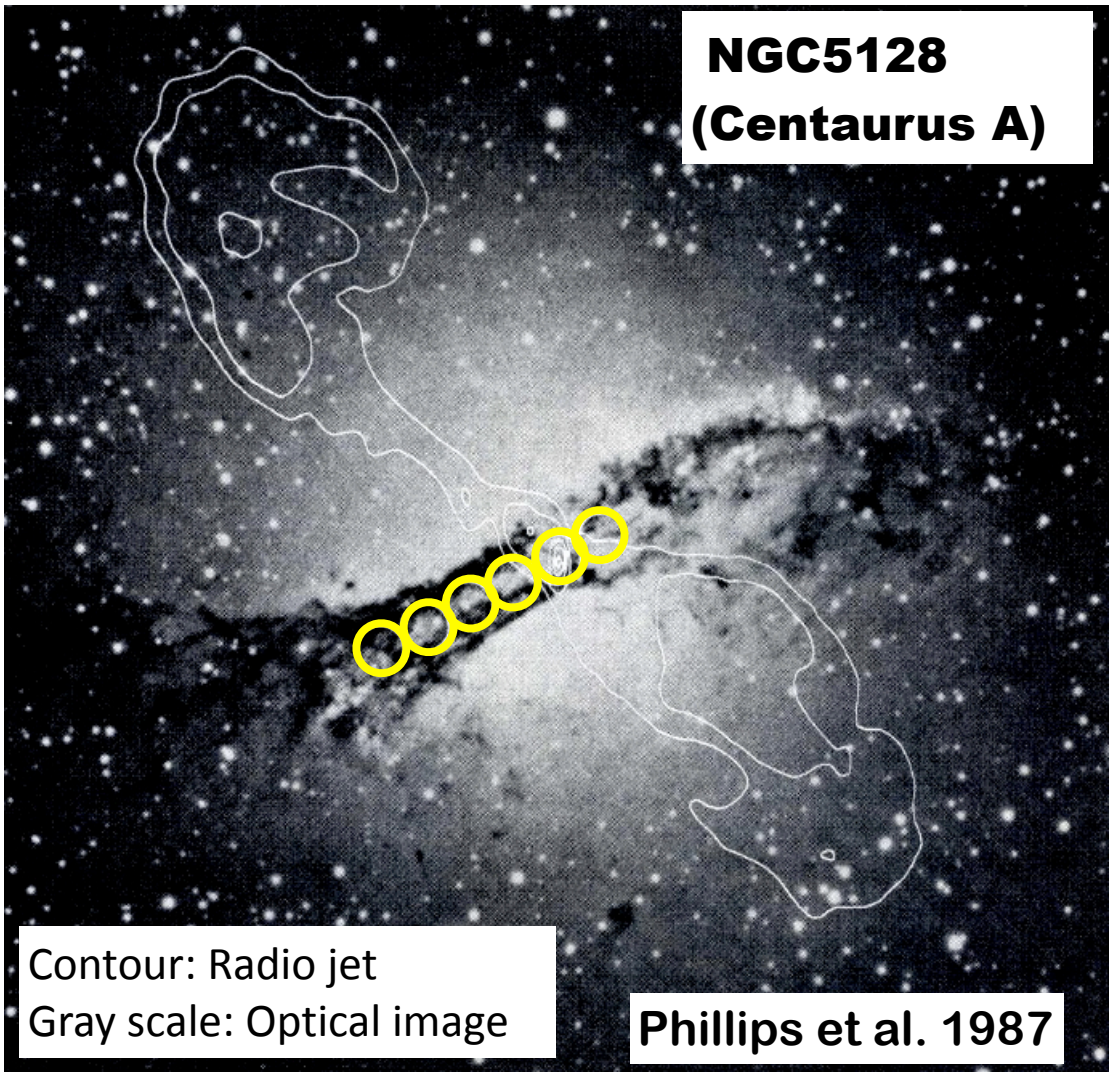
Comito et al. 2005

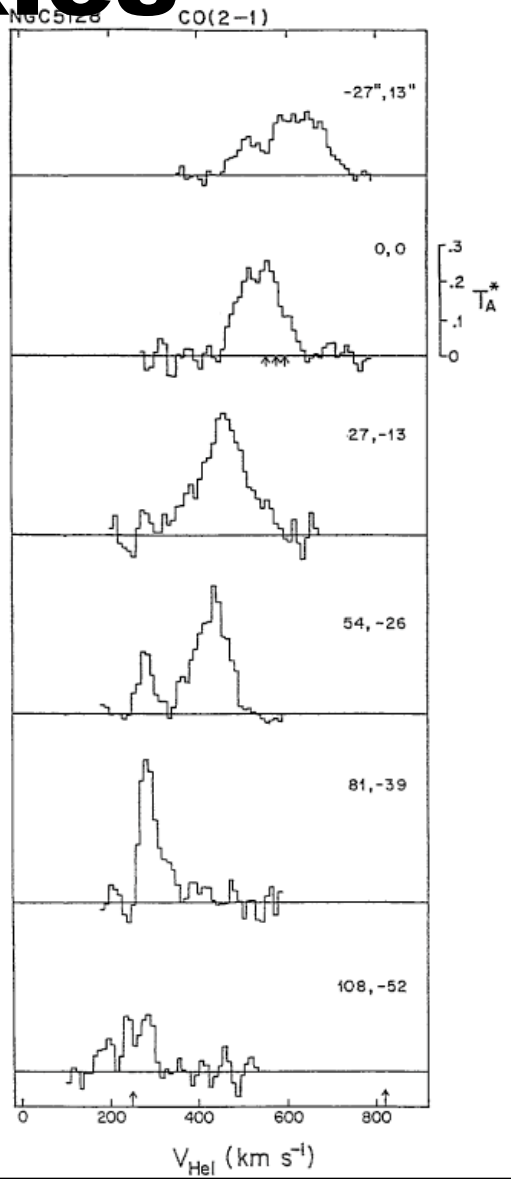
Role of Atomic Carbon [CI] in the Interstellar Medium



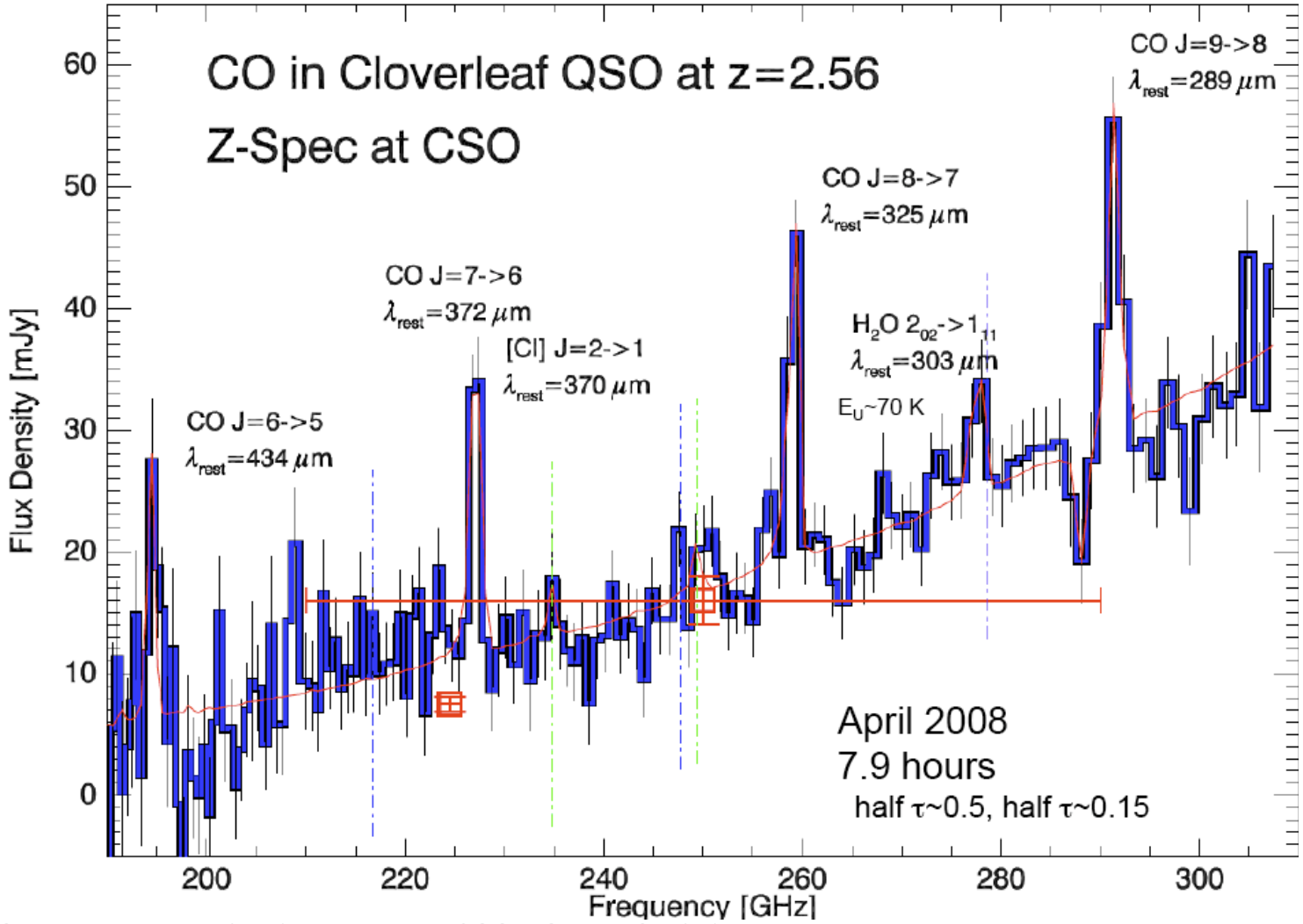
Pardo et al. 2005

Mapping of Molecular Gas of Radio Galaxies



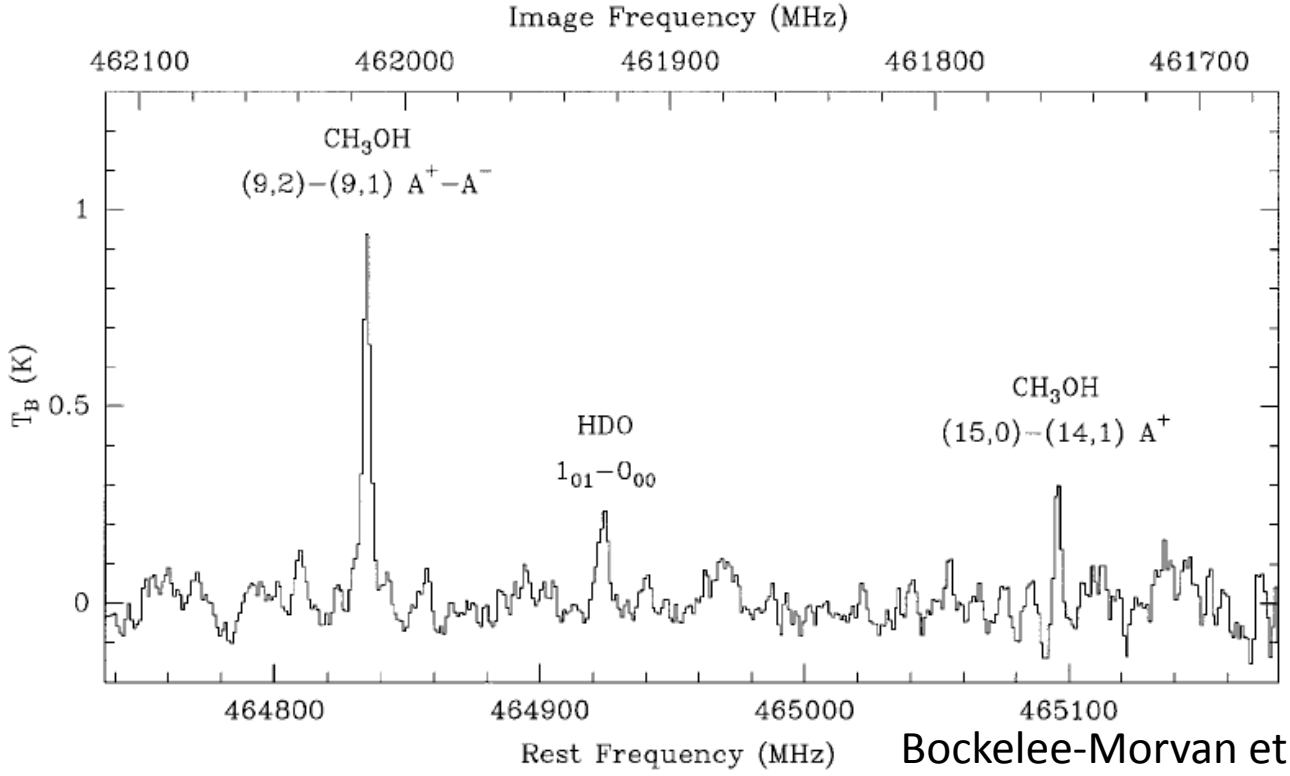


Spectroscopy of Distant and Local Galaxies using Z Spec



Heavy Water in Comets

- **Determination of the volatile composition of comets, including the first ground-based detection of HDO (heavy water) in a comet, leading to improved understanding of the origin of comets and of terrestrial water.**

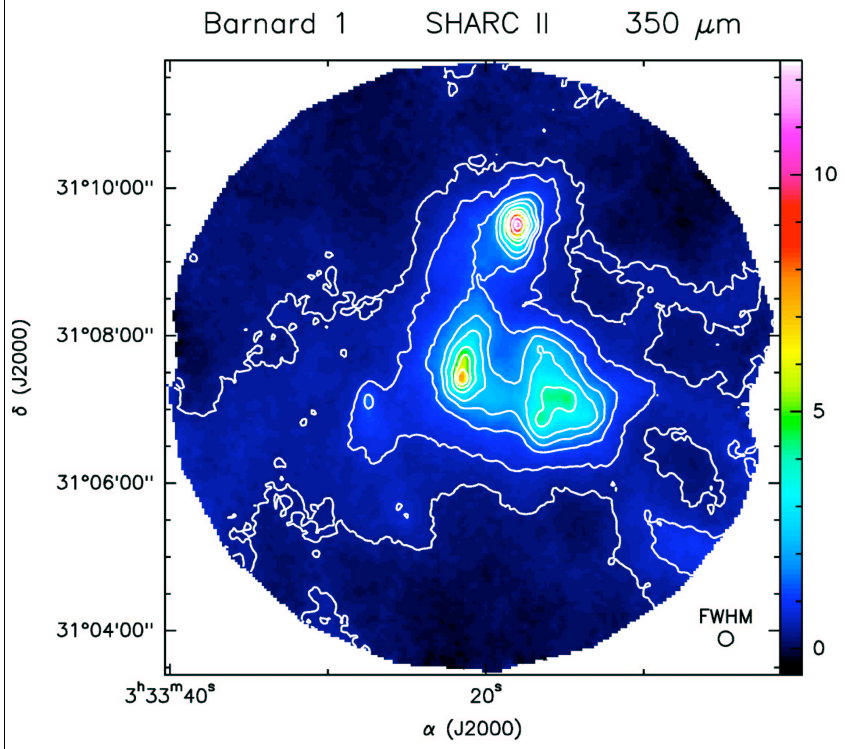


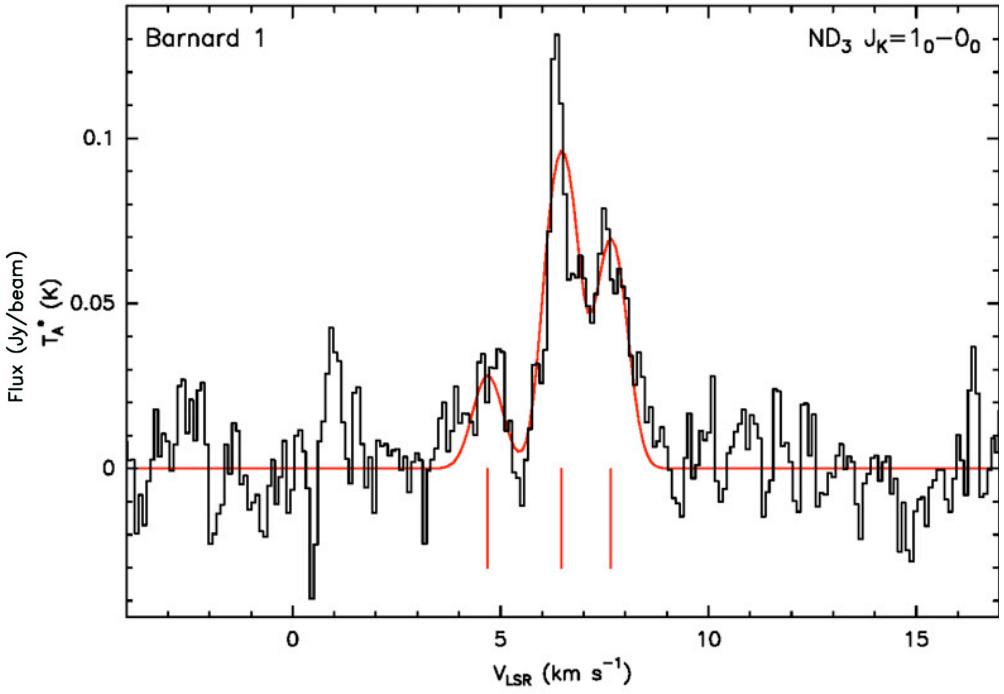
Bockelee-Morvan et al. 1998

Spectrum of the 101–000 line of HDO at 464.925 GHz in C/1996 B2 (Hyakutake)

Rare Molecule ND_3

- Discovery of ND_3, a rare type of ammonia, about 11 orders of magnitude stronger than initially presumed to exist.

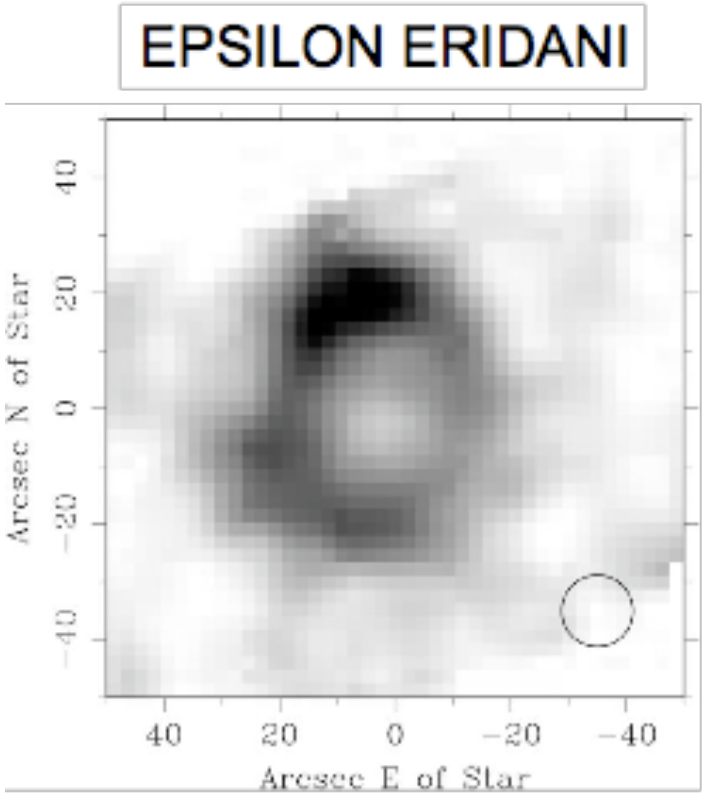




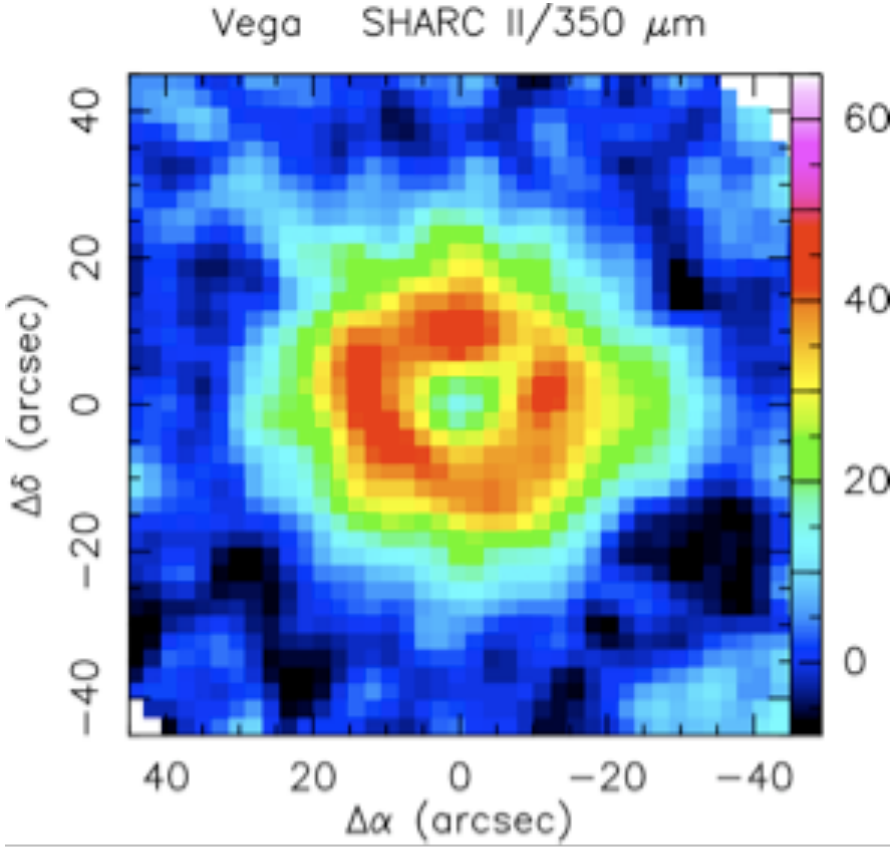
Barnard 1: Lis et al. 2002
NGC1333: Van der Tak et al. 2002

Stellar Debris Disks

- Spatially resolved imaging of nearby stellar debris disks, using SHARC, providing evidence for the presence of planets in these systems.



Backman et al. 09



Marsh et al. 06

http://www.submm.caltech.edu/~hs/press_release_20090430/CSO_PressRelease_2009April30.pdf