Astrochemistry: Recent Successes and Current Challenges
Poster Book IAU Symposium No. 231, 2005
A. J. Markwick-Kemper, ed.

DOI: 00.0000/X000000000000000X

Water and deuterated water in the high mass protostar Cepheus A East

Peter Schilke and Claudia Comito

Max-Planck-Institut für Radioastronomie, Auf dem Hügel 69, 53121 Bonn, Germany
email: schilke,ccomito@mpifr-bonn.mpg.de

Abstract. Water is a key ingredient of interstellar chemistry. Due to its abundance in the Earth's atmosphere, its observability from the ground is very limited, but it has been and will be a prime target of space borne studies (ISO, Herschel/HIFI). The disadvantage of this is the low spatial resolution of the (relatively small) satellite telescopes. Some lines of isotopically substituted water ($H_2^{18}O$) and deuterated water (HDO) can be observed from the ground, taking advantage of the higher spatial resolutions particularly achieved by interferometers.

In this poster, we present sub-arcsec resolution images of the water isotopologues $H_2^{18}O$ and HDO toward the high mass protostar Cep A East, obtained with the Plateau de Bure Interferometer at 203 GHz and 241 GHz, respectively. This allows a study of the distribution of water relative to the hot core(s) and the outflows exisiting in this region (see accompanying poster by Comito et al. for a discussion of the morphology), and of the relative distribution of water and deuterated water. Interferometeric studies of this kind will be indispensable complements to the above mentioned space borne water observations, and will rise in importance once ALMA becomes operational.