

## THE CHEMICAL DIVERSITY OF COMETS: RECENT RESULTS FROM RADIO OBSERVATIONS

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A fundamental question in cometary science is whether or not the different dynamical classes of comets are correlated with different chemical compositions (Bockelée-Morvan et al. 2005). The dynamical classes point to various reservoirs of comets. If these latter are associated with different sites of formation, one would expect a diversity in the chemical composition of comets, due to different initial conditions. From the ground or Earth orbit, radio and infrared spectroscopic observations of a now significant sample of comets indeed revealed deep differences in the relative abundances of cometary ices. However, no obvious correlation with dynamical classes is found (Biver et al. 2002; Crovisier 2007; Crovisier et al. 2008). Further results came, or are expected, from space exploration. This means of investigation, by nature limited to a small number of objects, is unfortunately focussed on short-period comets (mainly from the Jupiter family). But it provides ground truth for remote sensing. Our database of spectroscopic radio observations has been recently enriched by the Jupiter-family comets 9P/Tempel 1, 73P/Schwassmann-Wachmann and 17P/Holmes, and the Halley-type comet 8P/Tuttle (Biver et al. 2007, 2008a, 2008b, 2008c).

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