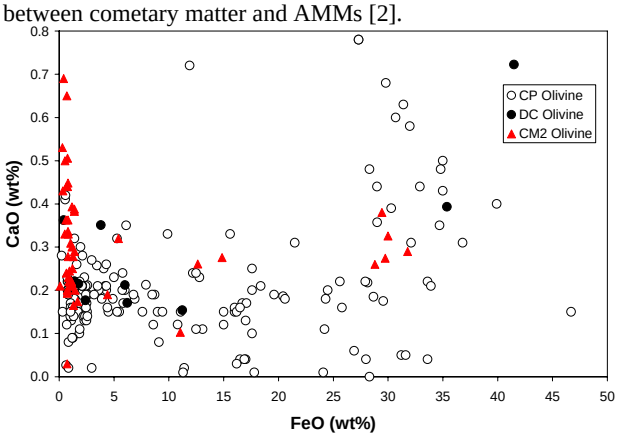
COMPARISON OF ANHYDROUS MINERALS OF CONCORDIA AND CAP-PRUDHOMME ANTARCTIC MICROMETEORITES. PREDICTIONS FOR WILD-2 COMETARY PARTICLES.

C. Engrand[1], J. Duprat[1], M. Maurette[1], G. Kurat[2,] M.Gounelle[1,3]. [1]CSNSM-CNRS, Bat. 104, F-91405 Orsay, France, engrand@csnsm.in2p3.fr. [2]Univ. Wien, Inst. Geol. Wissenschaft, 1090 Vienna, Austria. [3]LEME-MNHN, 75005 Paris, France.

Introduction : We compare the abundance and composition of anhydrous minerals in Cap Prud'homme Antarctic micrometeorites (CP-AMMs) with that of Concordia-Dome C AMMs (DC-AMMs, see [1]) to investigate the prediction of a possible link between cometary matter and AMMs [2].



Results and discussion : On this CaO vs FeO plot, the olivines found in CM2 chondrites show two distinct clusters with FeO < 5 wt% and CaO up to 0.7 wt%, and 27 < FeO < 33 wt%, respectively, which are connected by a sparsely populated gap. The distribution of FeO contents in CP-AMMs shows the same clusters with a more densely populated gap. Although the statistics for DC-AMM olivines is limited, there is a hint that the distribution of their FeO contents is comparable to that of CP-AMM olivines.

The pyroxene/olivine abundance ratio in CP-AMMs is about 1 (i.e., 165 pyroxenes for 179 olivines) whereas it reaches about 3 (38 pyroxenes for 12 olivines) in the DC collection. The ratio of 1 found for CP-AMMs was already much higher than that found in CM chondrites and was compared to that observed in CR chondrites [3]. The higher value found in the DC-AMMs is possibly related to the new population of friable grains found in this collection [4].

It will be interesting to check how the characteristics of olivine and pyroxene grains in anhydrous IDPs and in Wild 2 particles returned by Stardust will compare with that of CP- of DC-AMMs. All these olivines might originate from a common locale in the early solar nebula. They were possibly generated during the collisional fragmentation and/or abrasion of chondrules in the hot inner solar system. Then, only the finest fragments could be fired on ballistic trajectory, by x-wind [5], to the distant and cold formation regions of cometary ices.

References: [1] Duprat J. *et al.* (2006) *ASR*, in press. [2] Maurette M. (1998) in *The molecular origin of life* Cambridge Univ. Press, 147-186. [3] Kurat G., *et al.* (1994) *GCA* **58**, 3879-3904. [4] Duprat J., *et al.* (2005) *LPSC* **XXXVI**, #1678 (CD-ROM). [5] Shu F. *et al.* (1996) *Science* **271**, 1545-1552.