



Strong oxidizer in the Martian atmosphere observed by MEX/PFS

Shohei Aoki (1), Yasumasa Kasaba (1), Hiromu Nakagawa (1), Isao Murata (1), Vittorio Formisano (2), Marco Giuranna (2), and Anna Geminale (2)

(1) Tohoku University, Geophysics, Sendai, Japan (kasaba@pat.gp.tohoku.ac.jp, 022 795 5775), (2) I.F.S.I., INAF, Rome, Italy.

It has been suggested the large and fast variations of methane in Martian atmosphere could be caused by oxidation with H₂O₂, which could be produced in quantities much larger than foreseen by water photochemistry during dust storms by means of electrostatic charging of the dust grains.

Past measurements of H₂O₂ mixing ratios are few and contradictory with photochemistry model.

We performed a sensitive search for Martian H₂O₂, its mixing ratio, and its variation from continuous observations with Planetary Fourier Spectroscopy (PFS) aboard Mars Express (MEX).

We could find possible lines of H₂O₂ not contaminated by strong water lines.

Large mixing ratio H₂O₂ exists through out 2004 and 2007, although the photochemistry models still predict lower mixing ratio.