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Mars methane emission and transport scenarios using the GEM-Mars GCM

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The observation of methane (Formisano et al., 2004; Krasnopolsky et al., 2004; Mumma et al., 2009) in the Martian atmosphere has raised questions about its source and origin as well as its chemical behaviour. The photochemical lifetime of methane is on the order of several hundred years which would give a well-mixed, uniform distribution but measurements suggest locally enhanced "plumes".

The GEM-Mars three-dimensional global chemistry-climate model is used to investigate the possible emission rates and lifetime of methane. The model simulations have a horizontal resolution of 4x4 degrees with 101 vertical levels up to approximately 140 km.

References

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