Data Representing Atmospheric Conditions on Mars

Pradyumnan R

JNCASR

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Features of Earth's Atmosphere

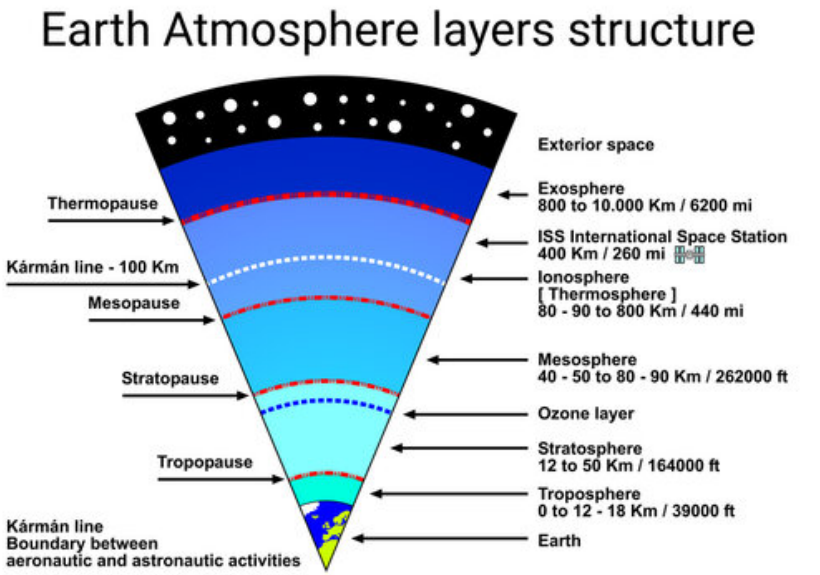

Fig. 1: Layers of Earth's Atmosphere

- The mean pressure is about 101,000 Pa.

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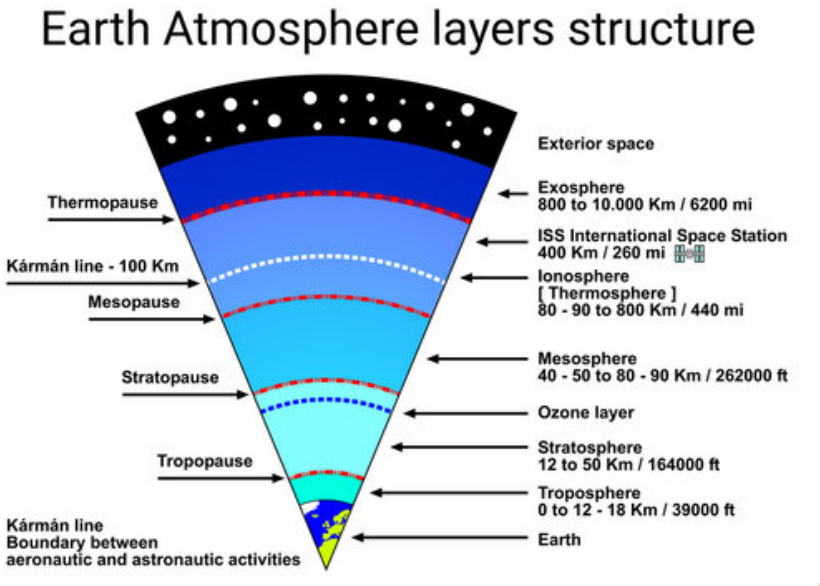

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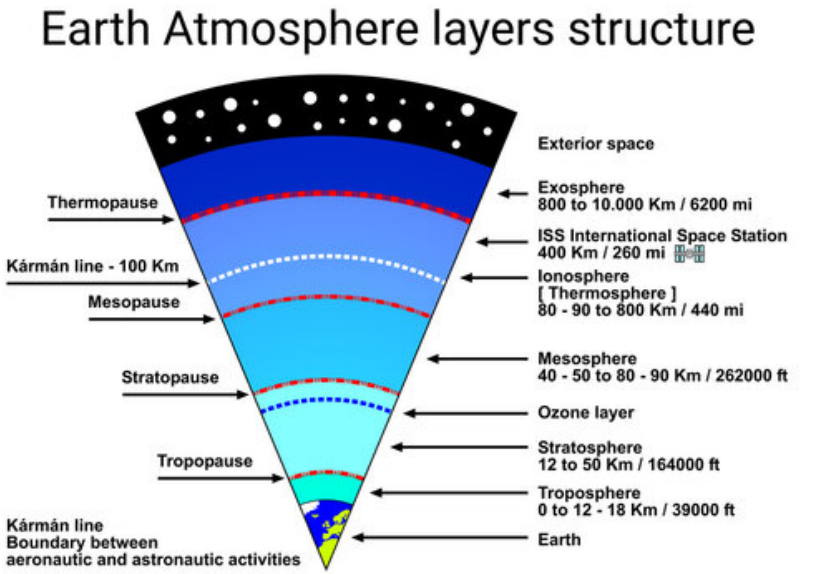

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- The mean pressure is about 101,000 Pa.
- The mean surface temperature is about $15^{\circ}C$.
- The atmospheric density at sea level is about $1.293 kg/m^3$.

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- Presence of katabatic[1] winds
- Atmospheric electricity

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- The descent trajectory is between $-3.91°N$ to $-4.59°N$ and $126.56°E$ to $137.32°E$.
- The variations of temperature, pressure and density during descent are highlighted in the next few slides.

Temperature

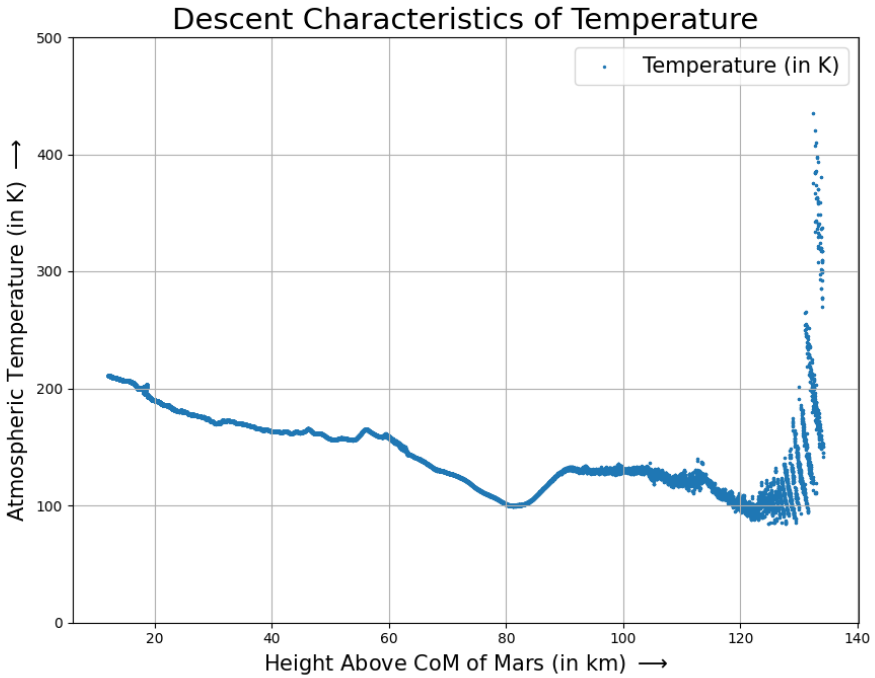

Fig. 2: Temperature During Descent

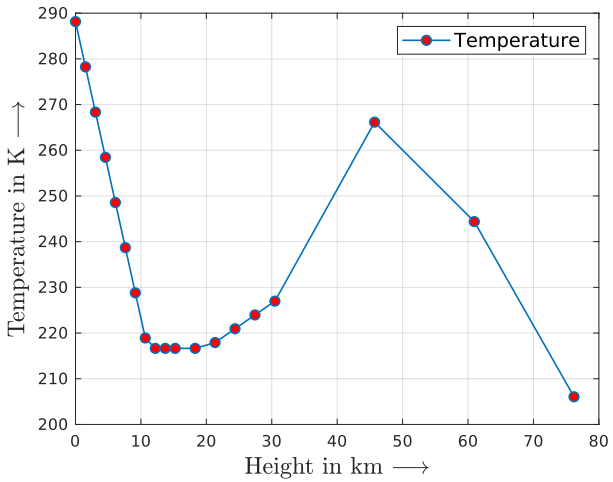

Fig. 3: Temperature on Earth

Pressure

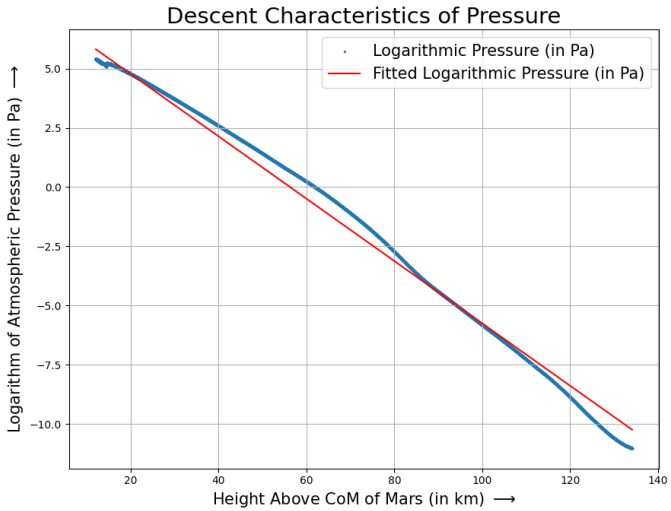

Fig. 4: Pressure During Descent

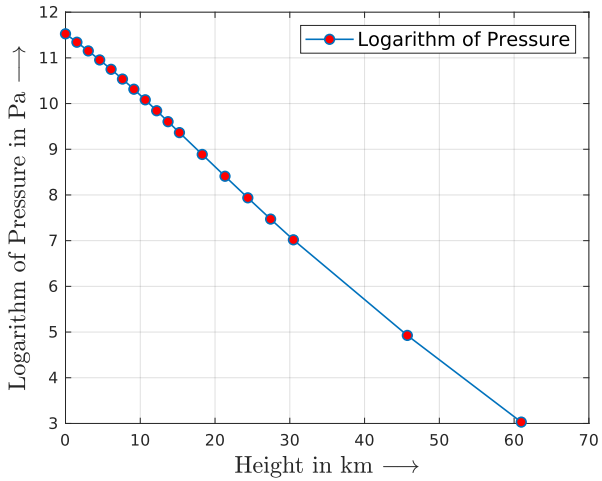

Fig. 5: Pressure on Earth

Density

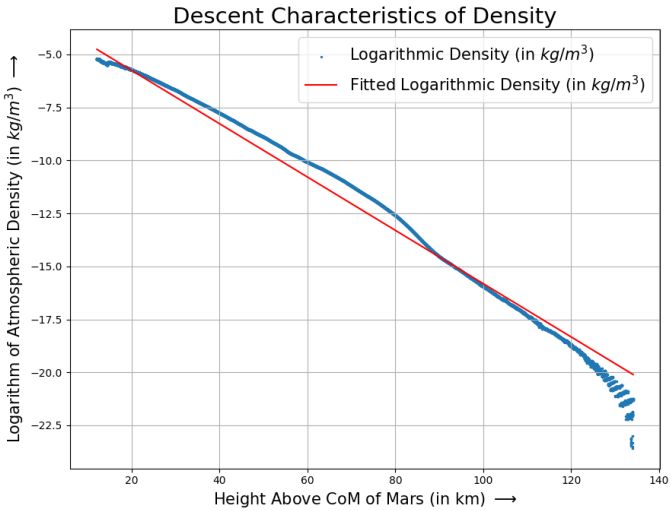

Fig. 6: Density During Descent

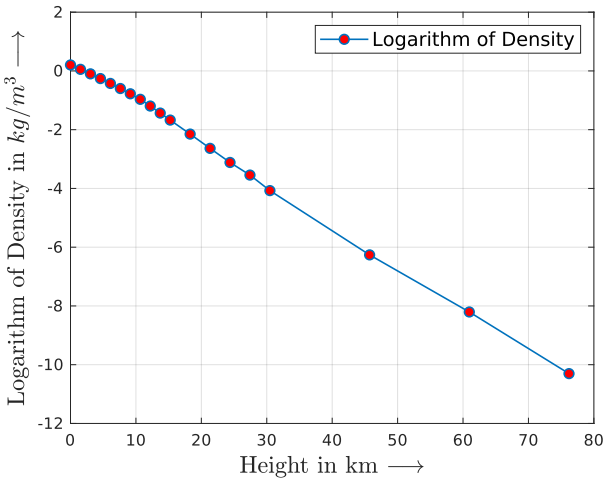

Fig. 7: Density on Earth

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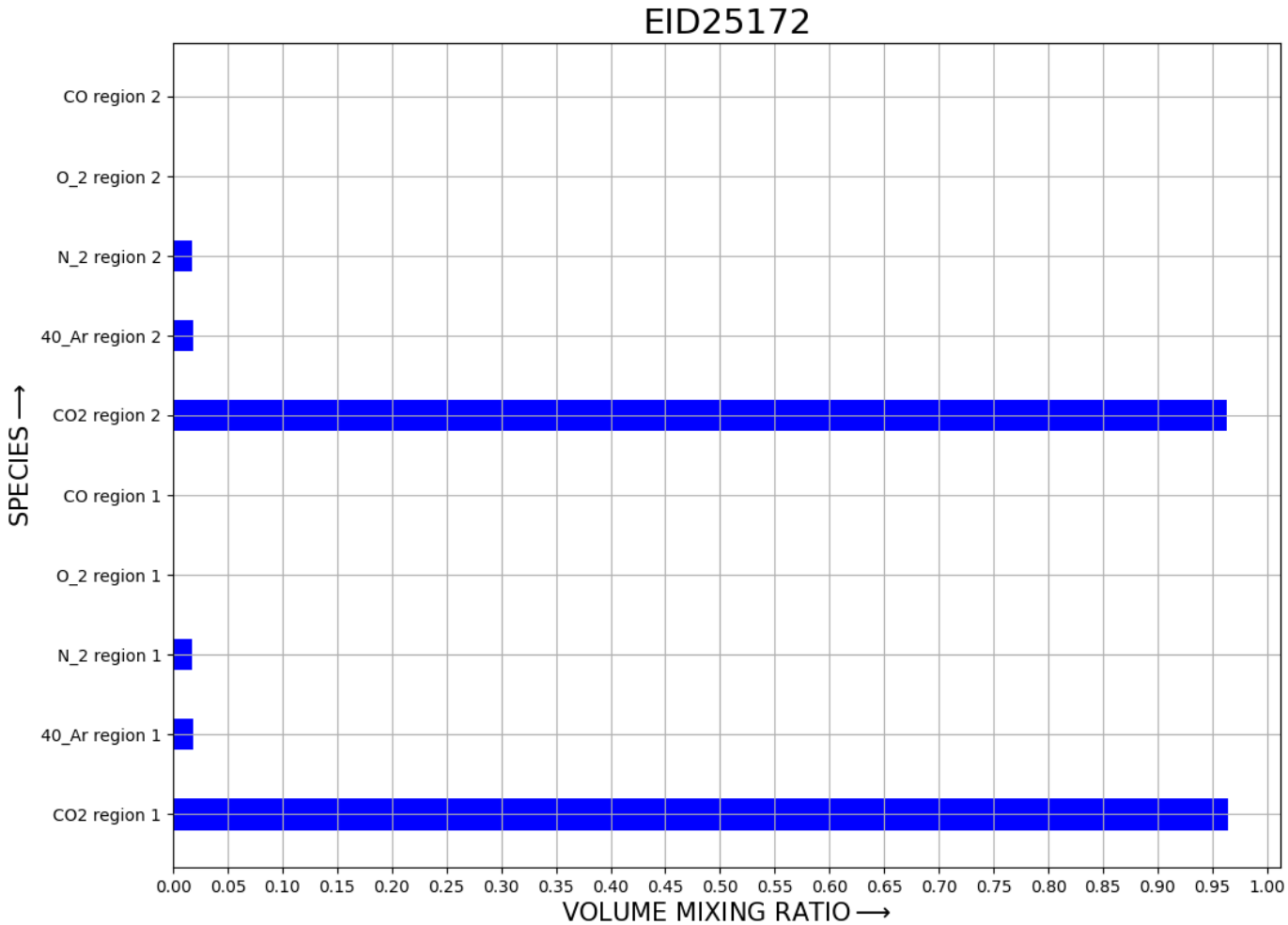
- The final data presented are the **volume mixing ratios** of various compounds in the Martian atmosphere obtained using the Quadrupole Mass Spectrometer (QMS) present on the rover.
- The next few slides give few representative plots of the volume mixing ratios of various compounds collected across 29 QMS experiments.

Volume Mixing Ratios



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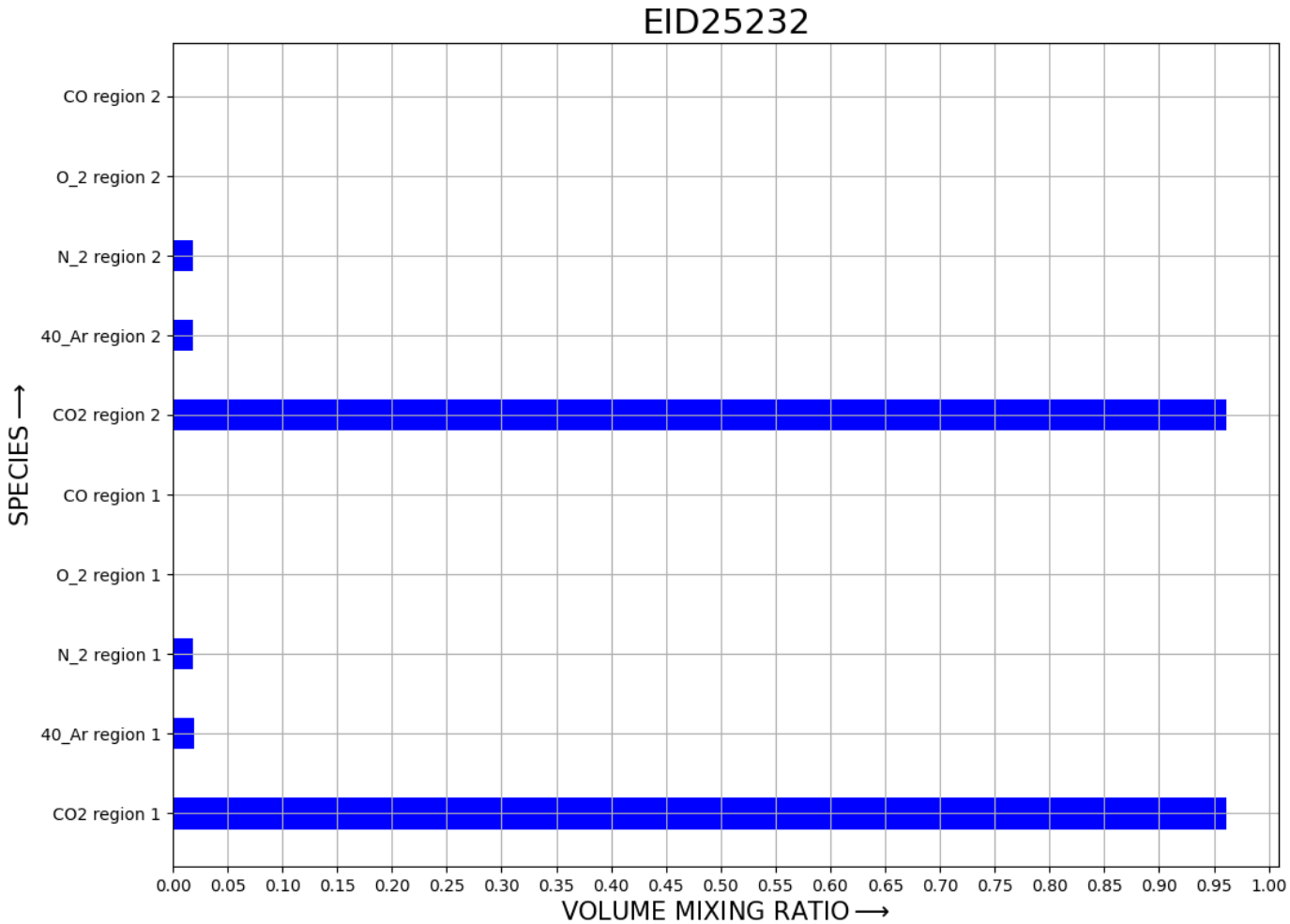

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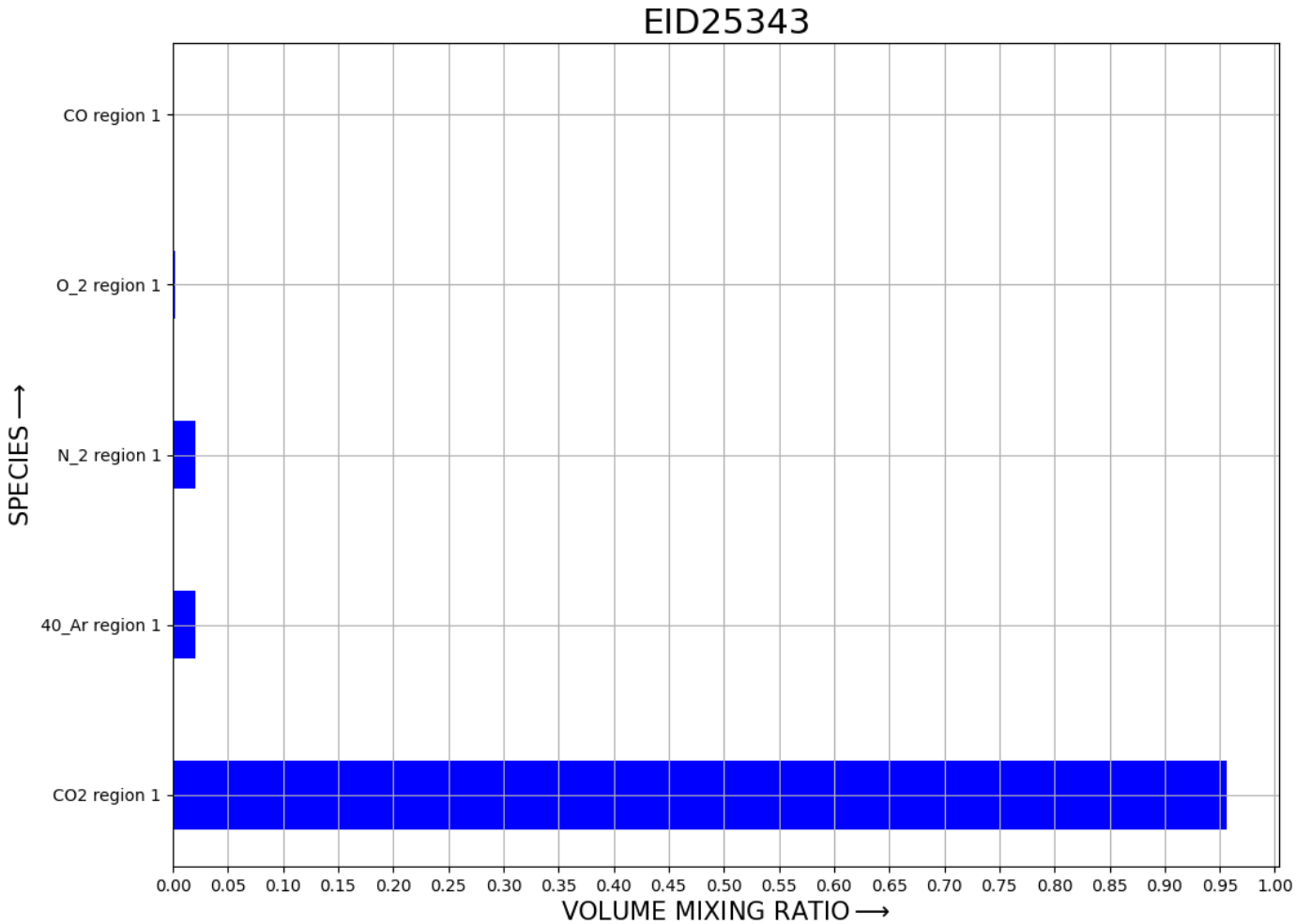

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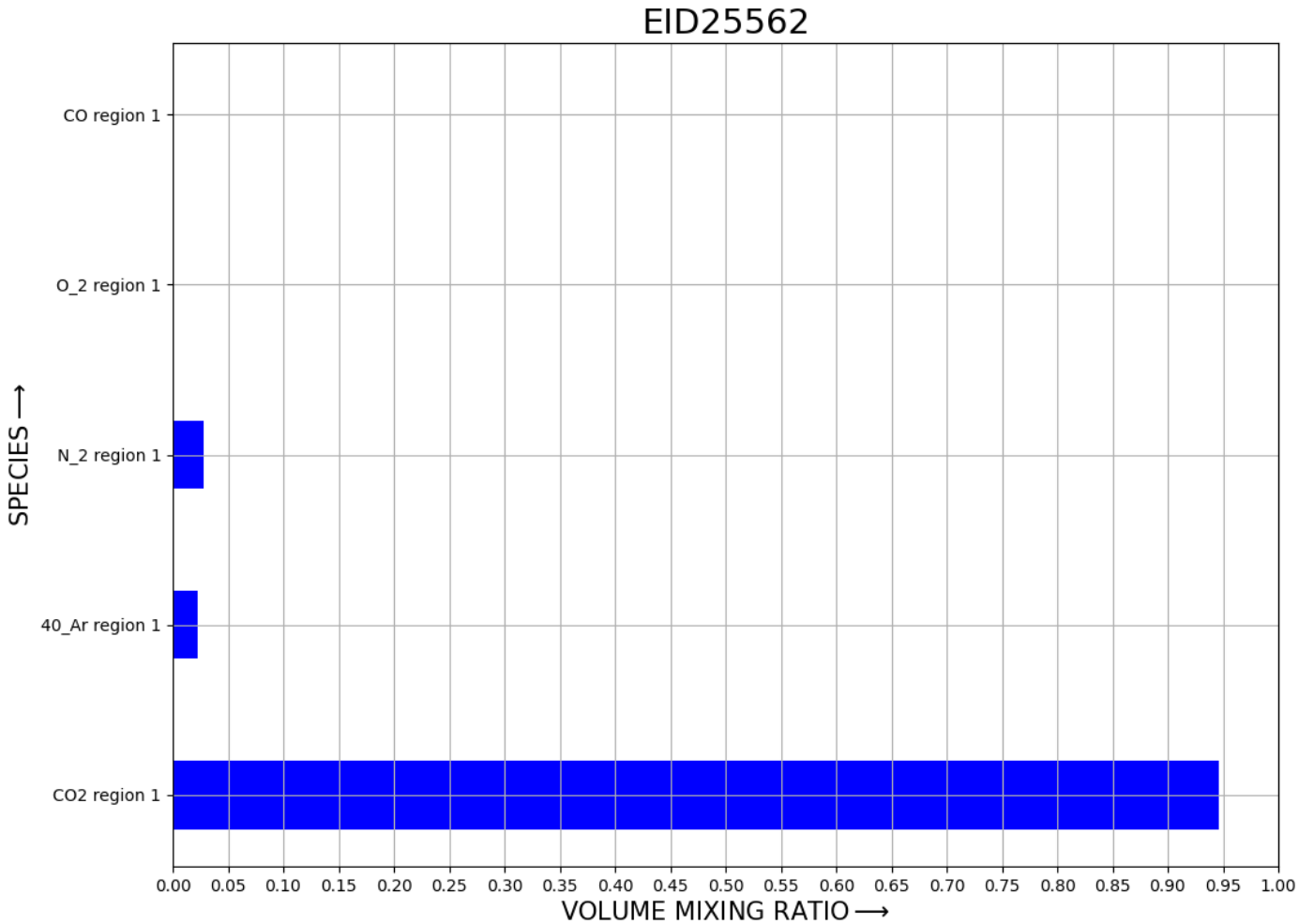

[1] C Holstein-Rathlou, A Maue, and P Withers.
Atmospheric studies from the mars science laboratory entry, descent and landing atmospheric structure reconstruction.
Planetary and Space Science, 120:15–23, 2016.

[2] SAM Reduced Data Record RDR.
Mars science laboratory (msl) software interface specification.
2013.