



Analysis of monthly mean profiles of water vapour and methane from MIPAS

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Monthly mean profiles

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- H₂O and CH₄: retrieved in near real time by ESA
- Monthly means:
 - identification of trends in the data
 - identification of step changes due to changes in processing
- Separate into latitude bands

65N-90N 20N-65N 000-20N 000-20S 20S-65S 65S-90S

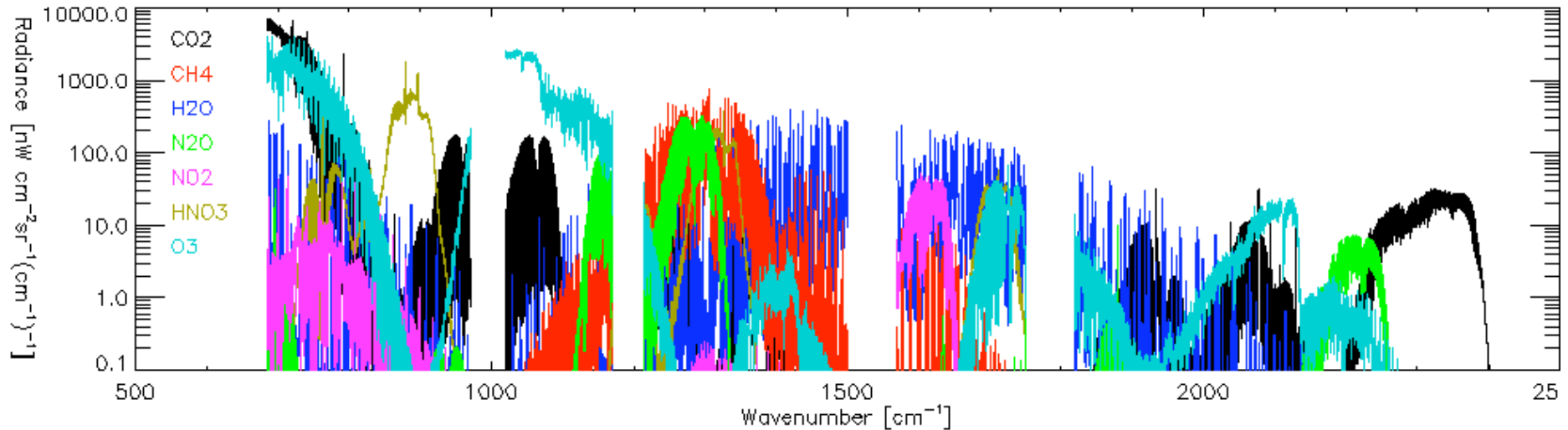
- Compare with climatology (supplied by John Remedios)

MIPAS microwindows

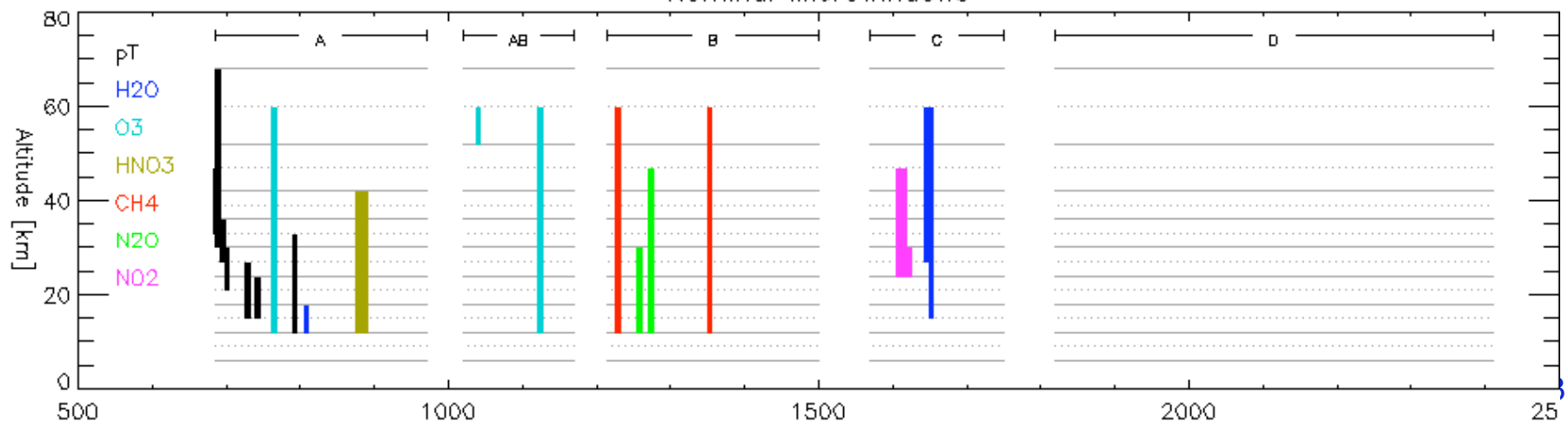
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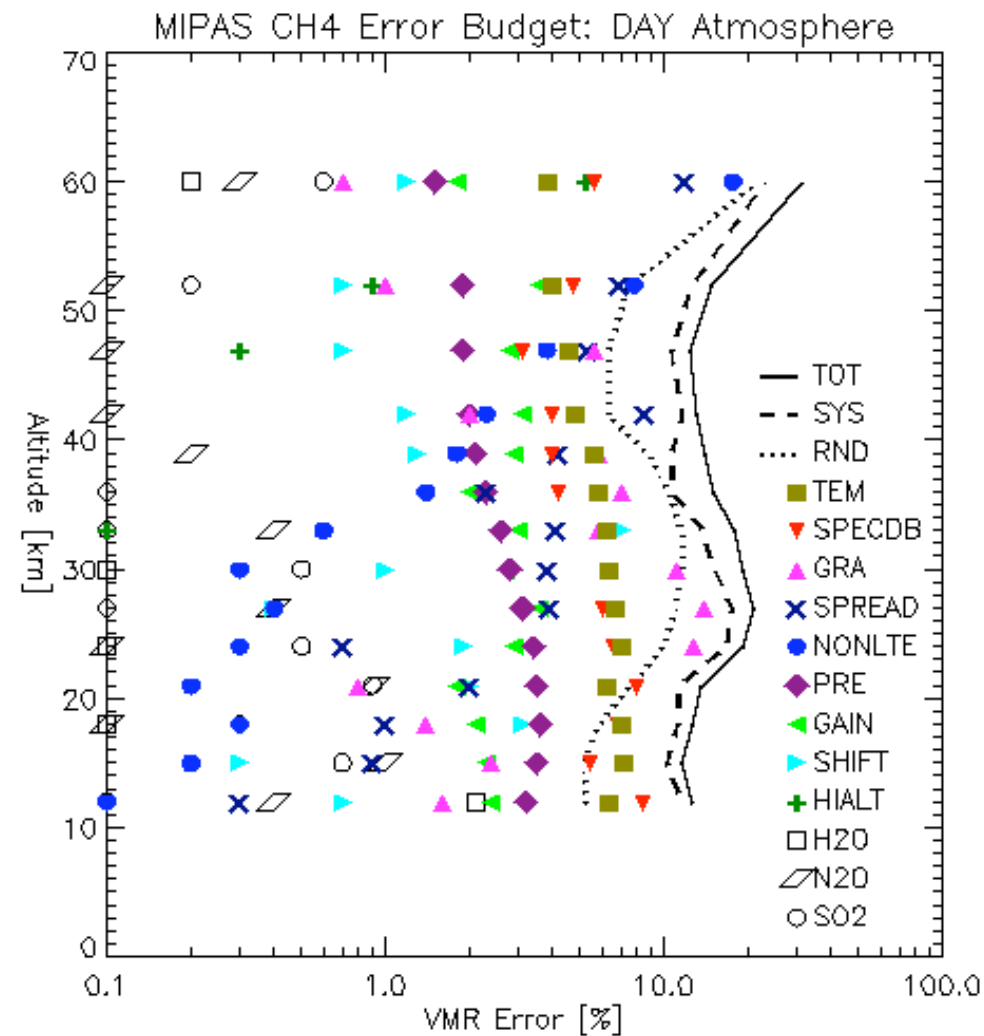
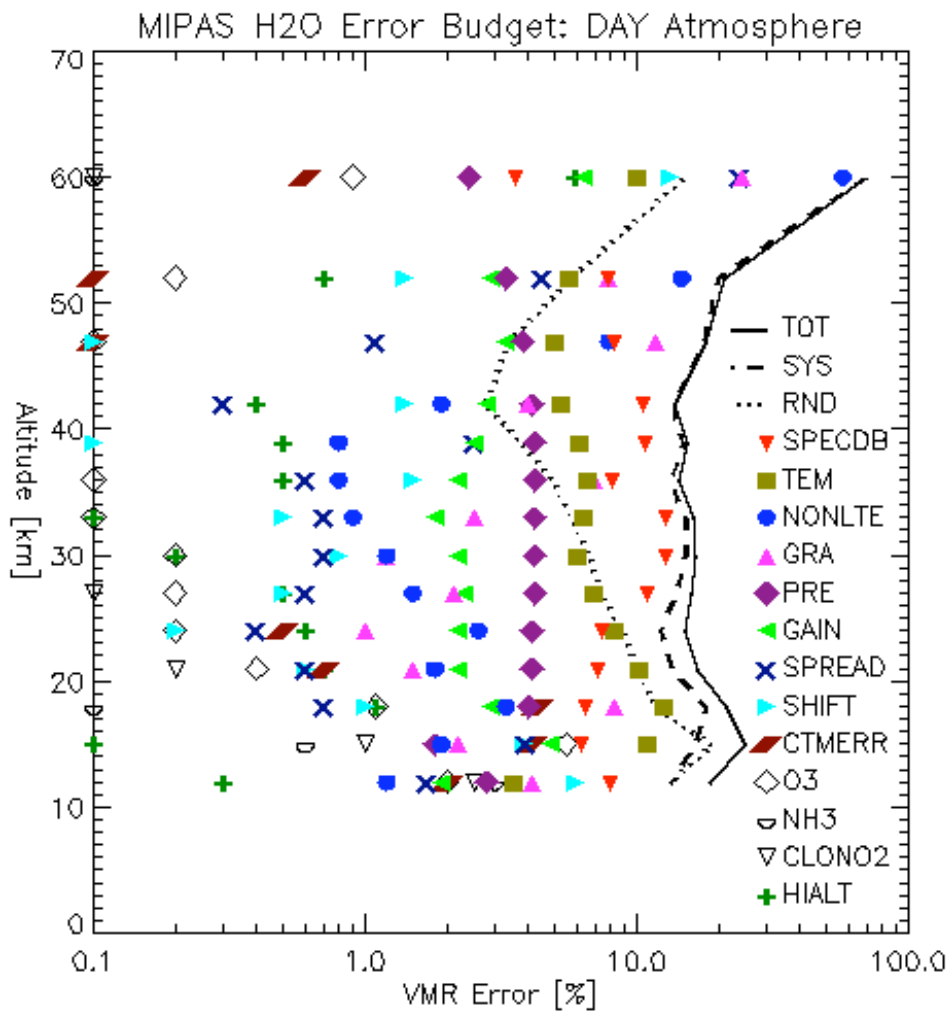
Radiance Contributions at 21km



Nominal Microwindows



Error contributions

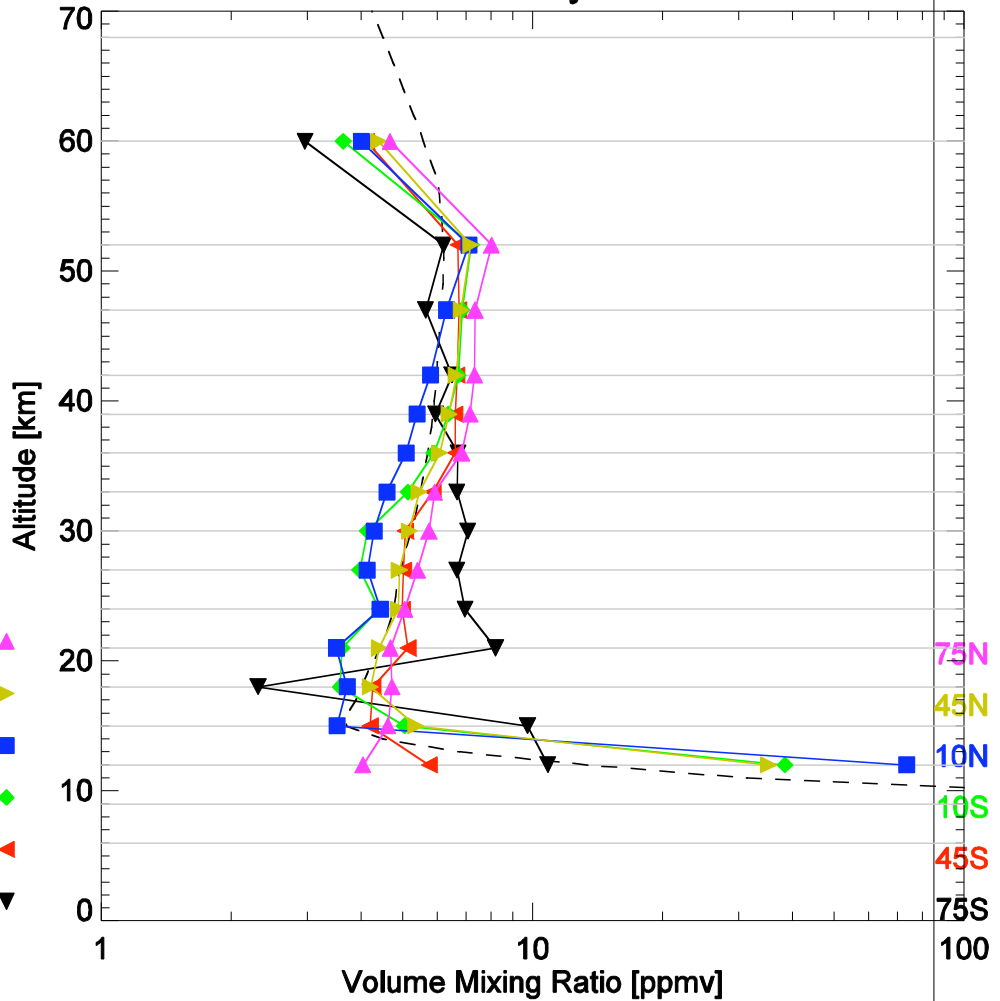


Monthly mean profiles

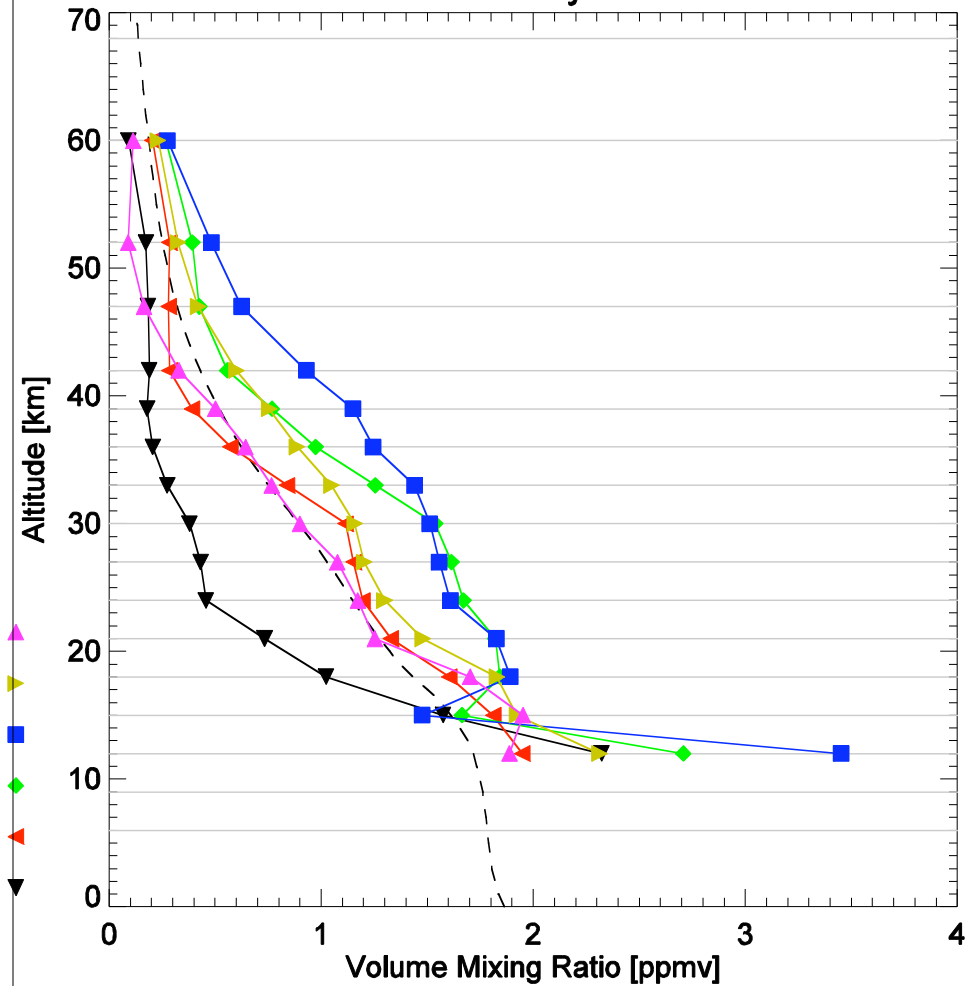
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MIPAS H₂O Monthly Mean AUG03

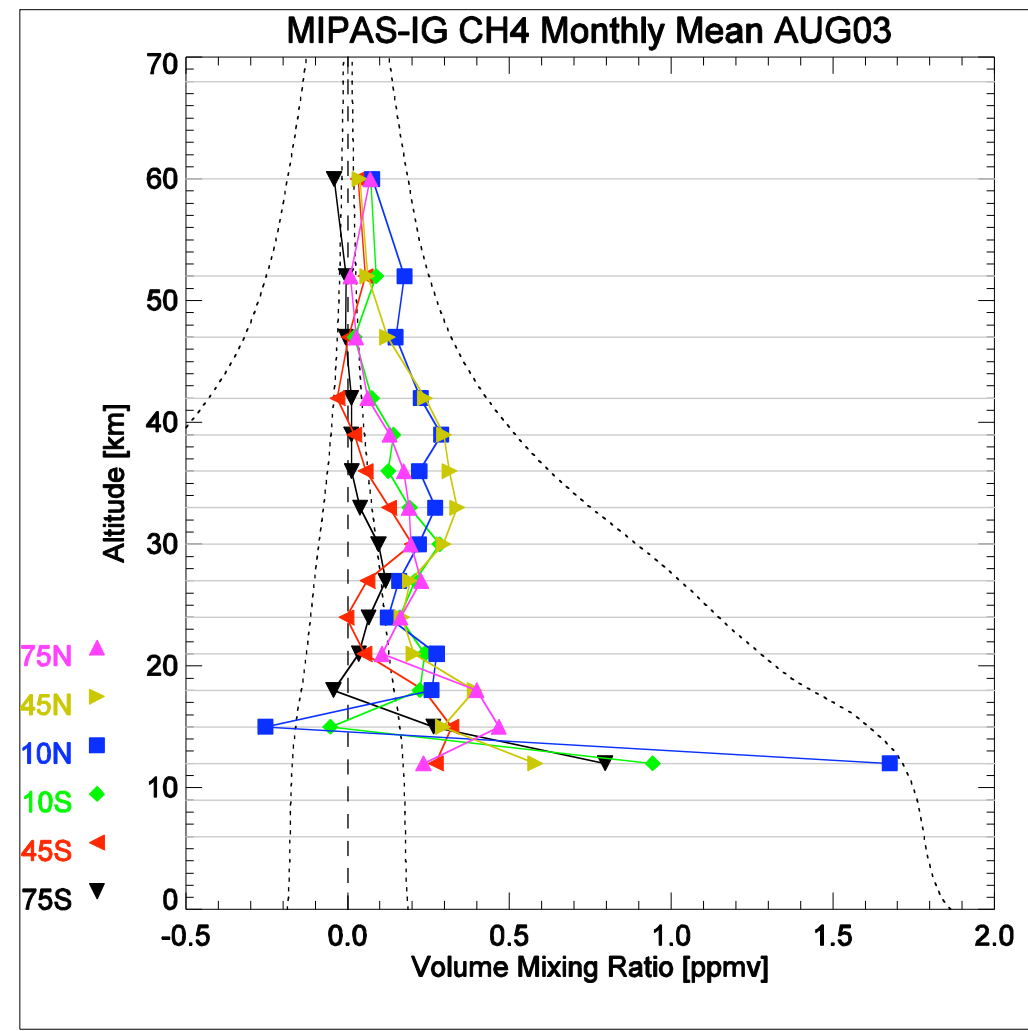
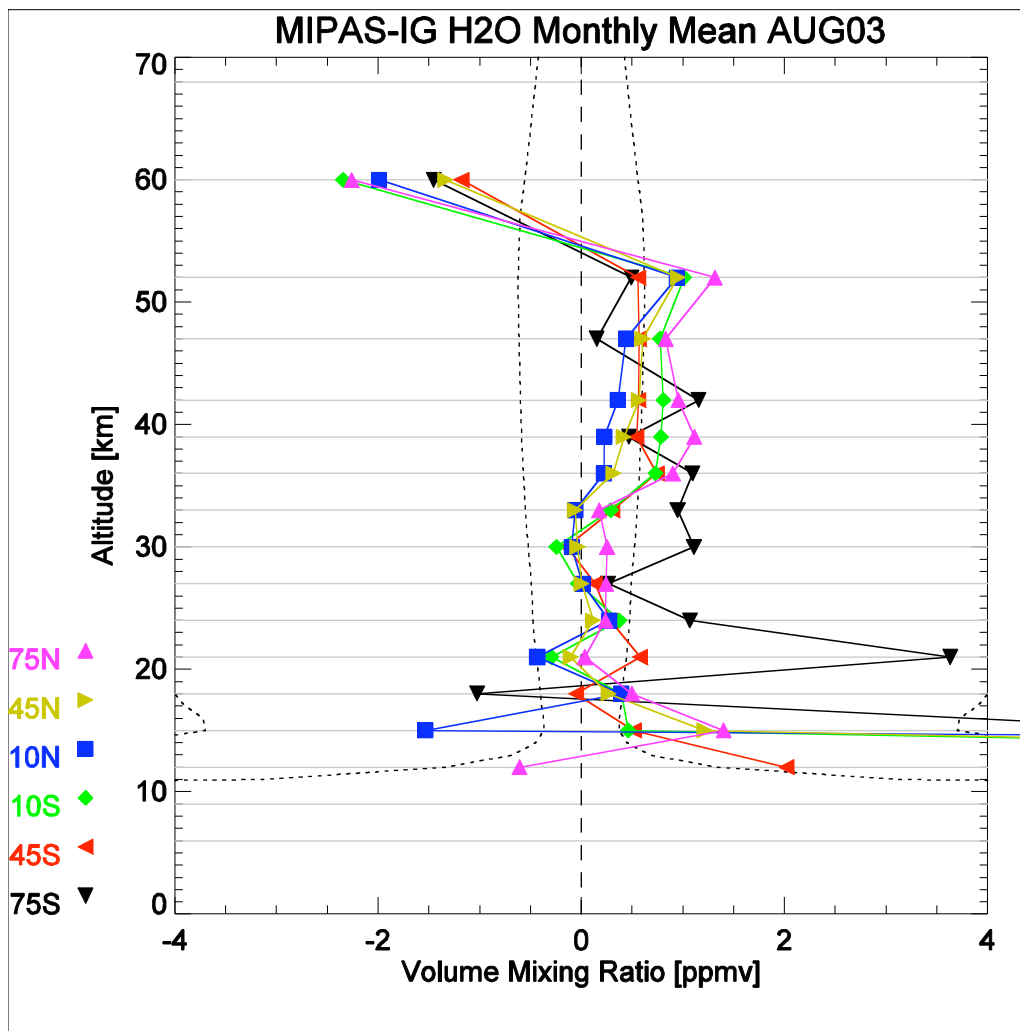


MIPAS CH₄ Monthly Mean AUG03

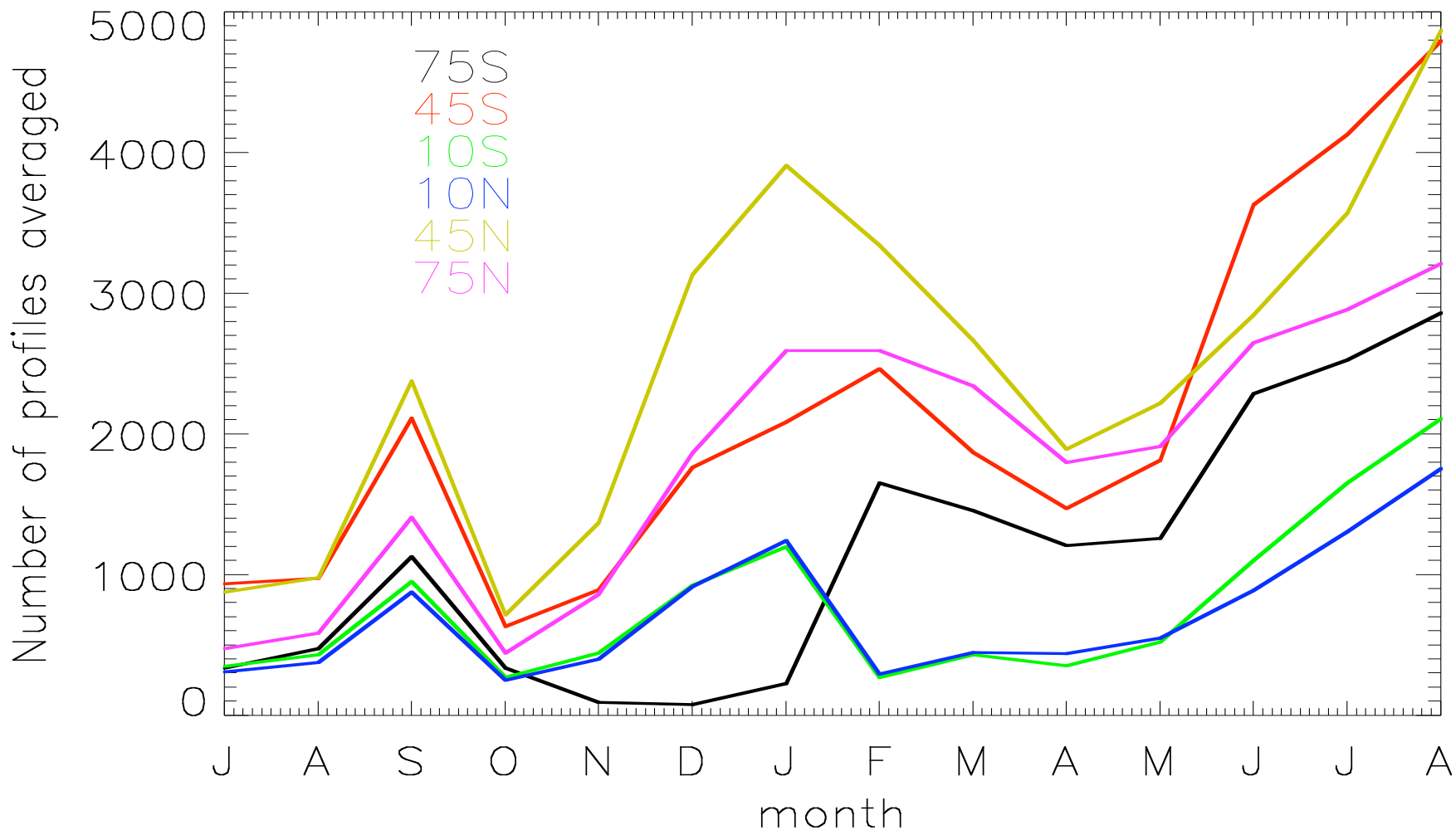


Differences from climatology

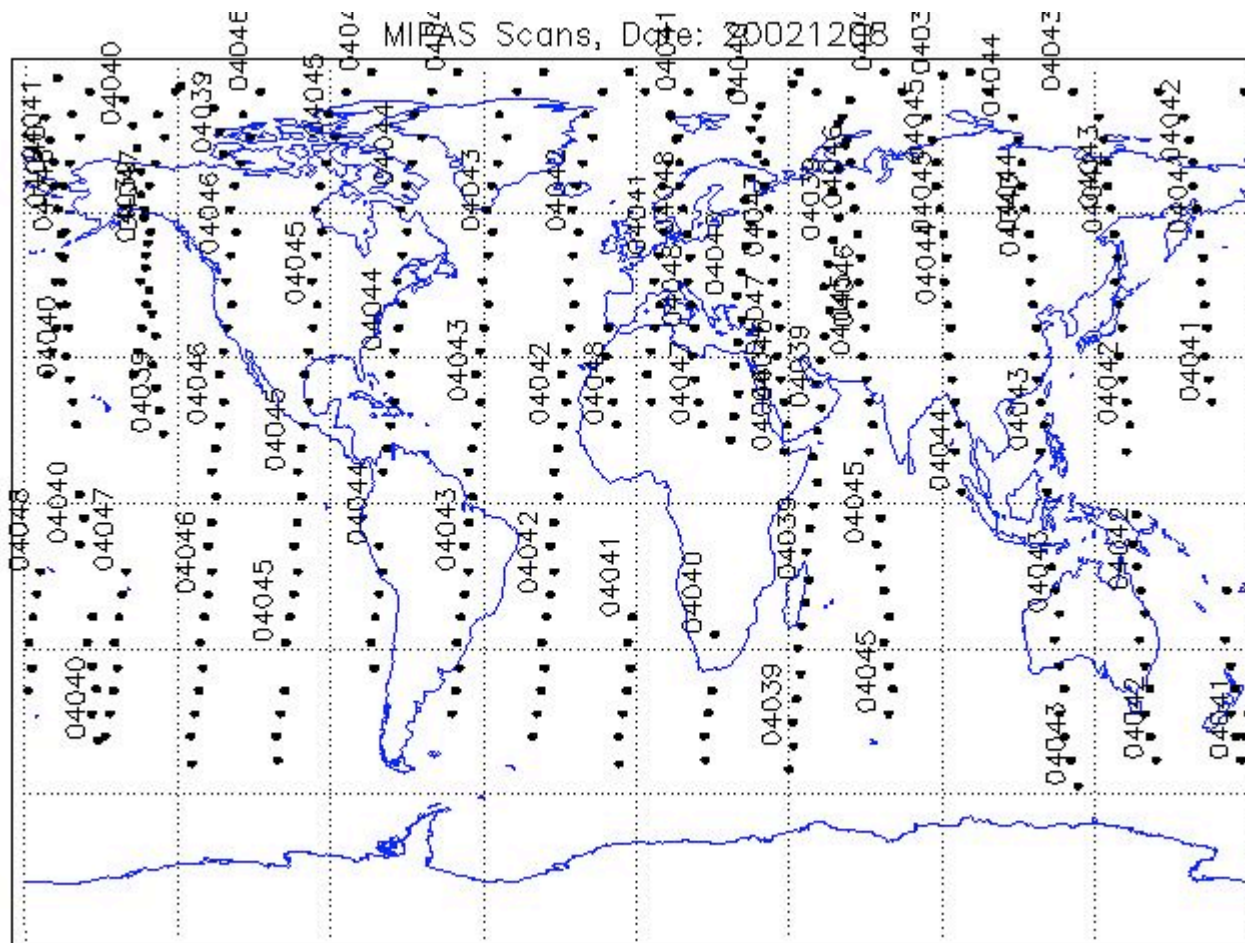
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Number of profiles



Coverage

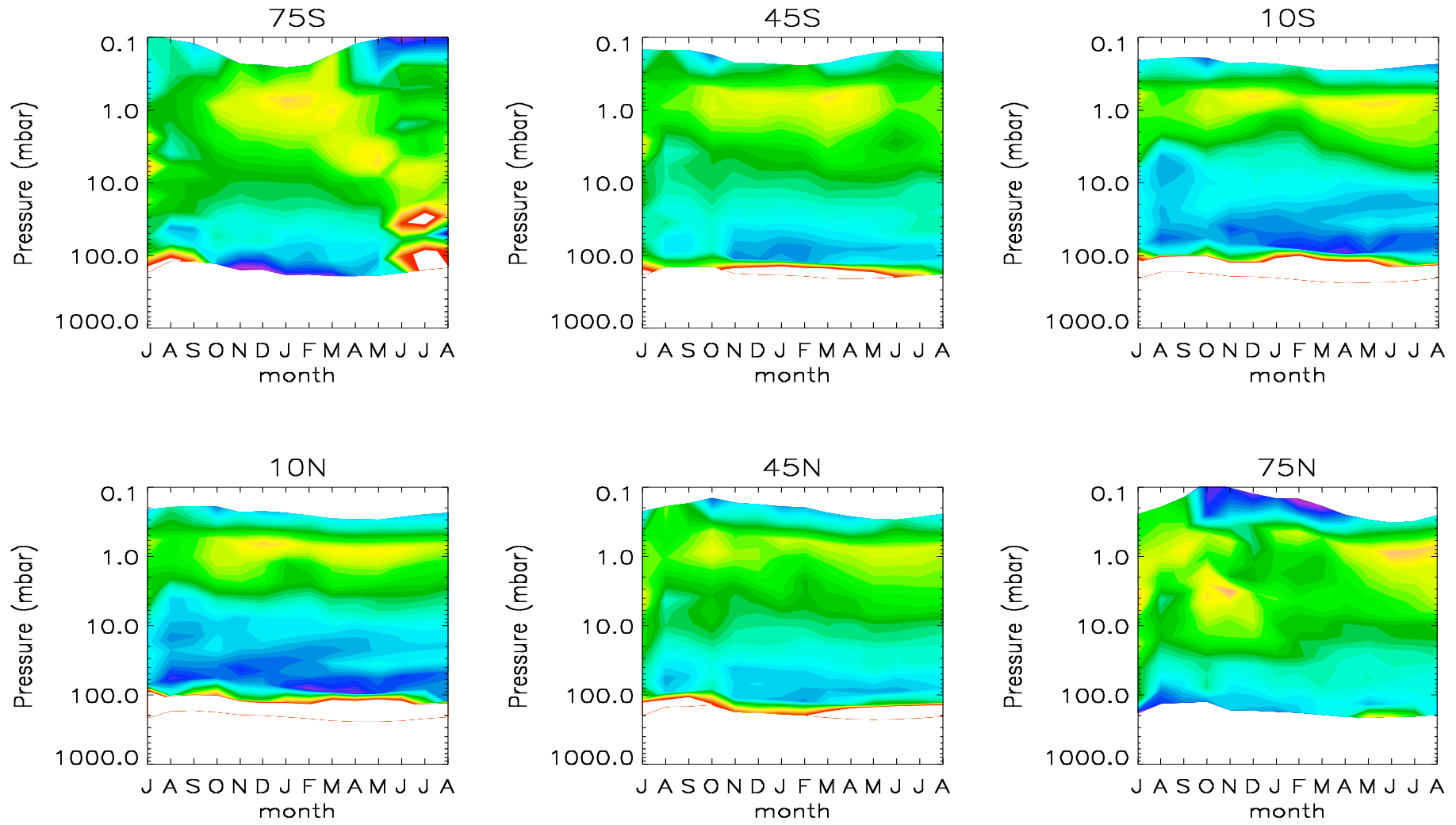


Problems in SH
polar region from
November 2002
to January 2003

Example:
8th Dec. 2002

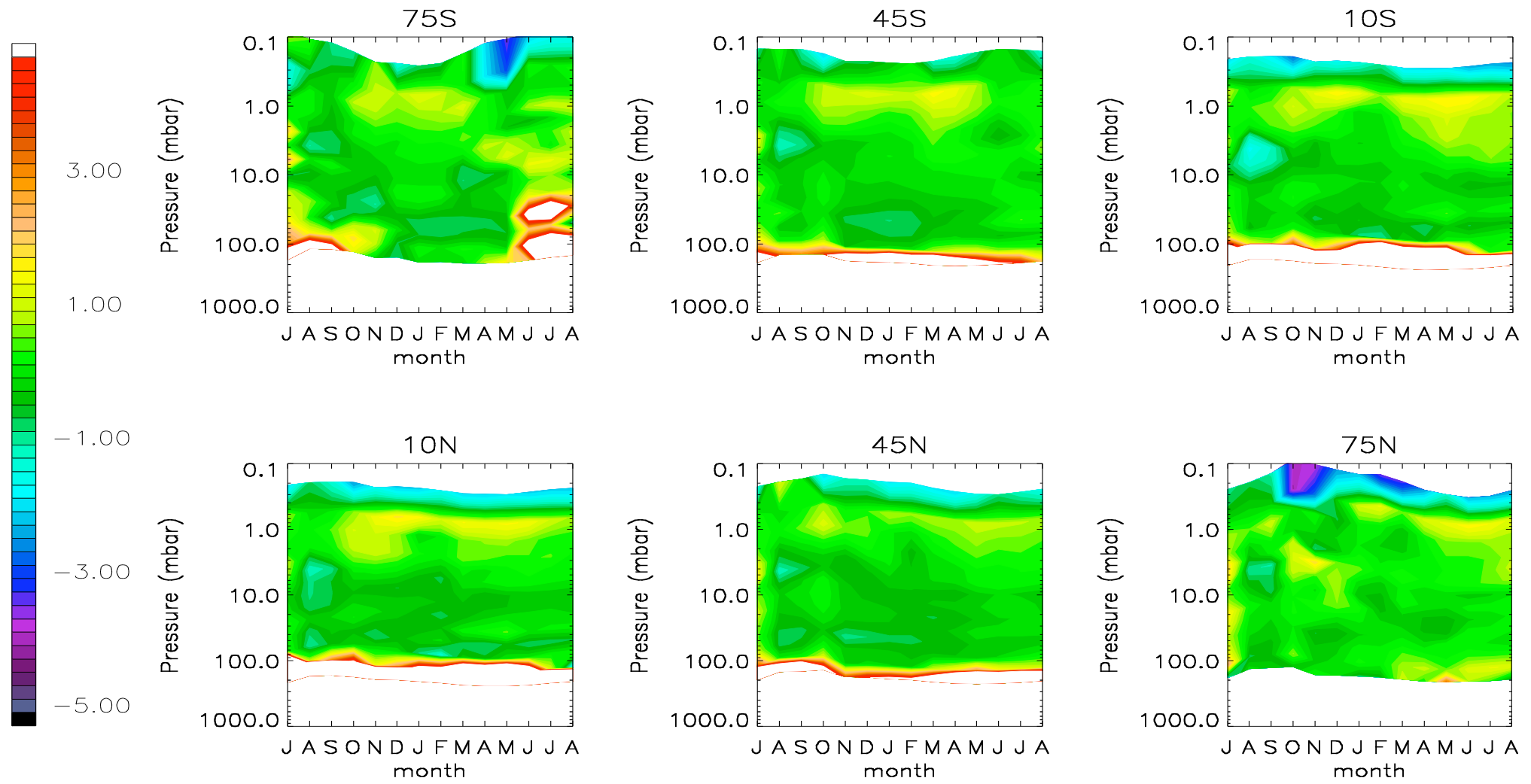
Time series (H_2O)

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MIPAS - climatology (H₂O)

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Summary (H₂O)

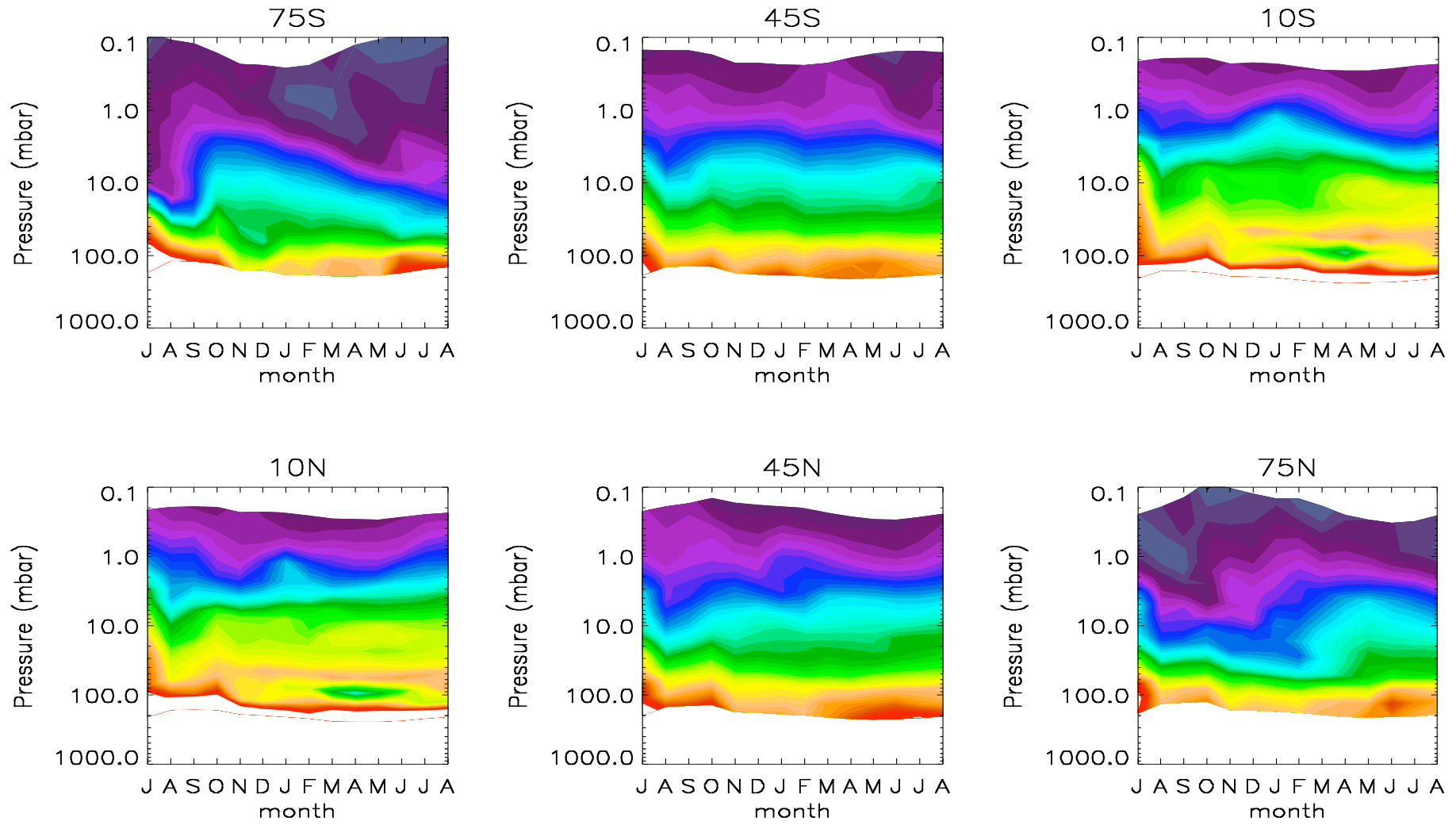
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- July/August 2002 probably less trustworthy
- Retrieved values generally higher than climatology at lowest altitudes
- Overshoot at 52km tangent altitude
- Strange behaviour in south polar region in June/July/August 2003

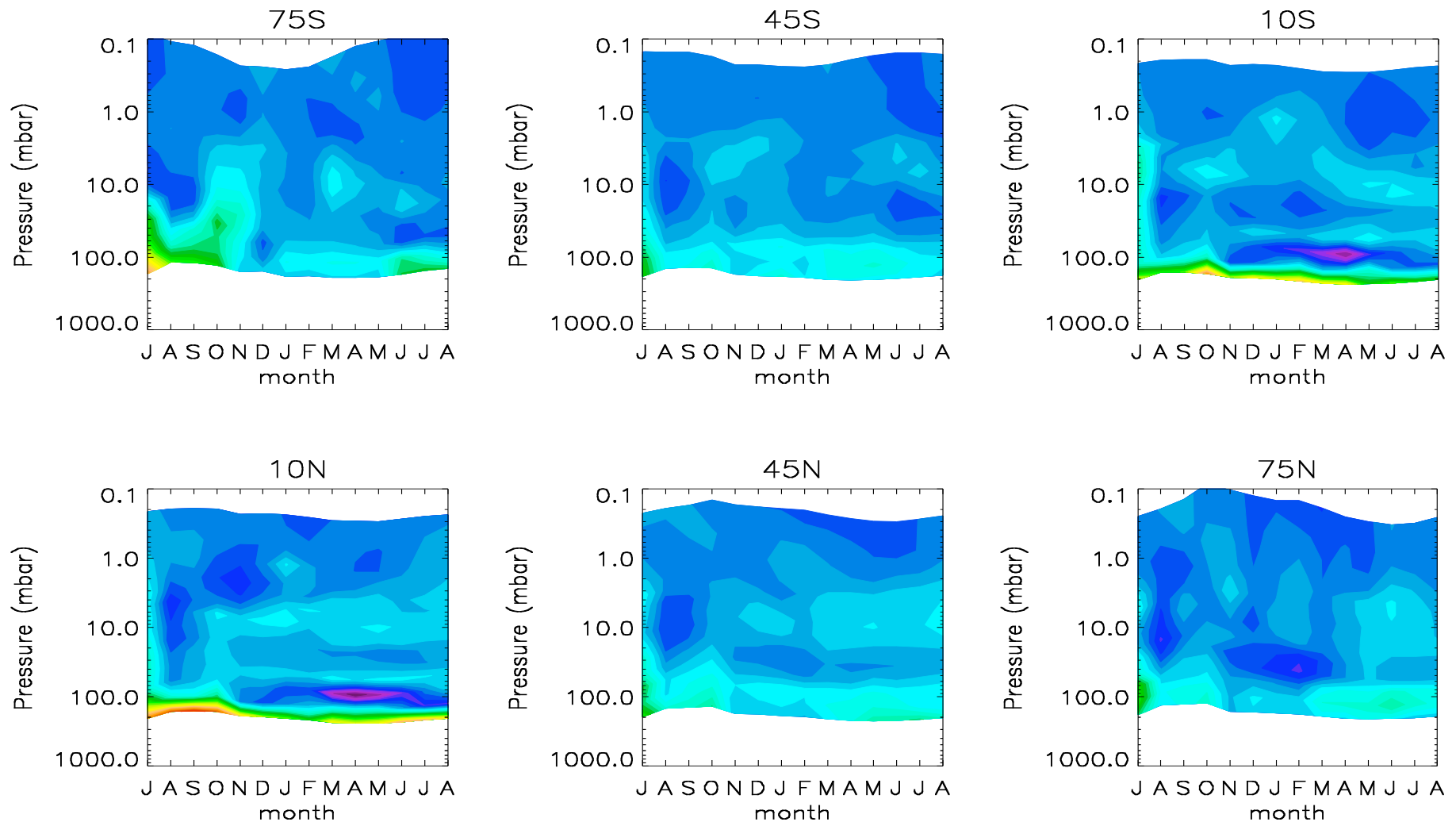
Time Series (CH₄)

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MIPAS - climatology (CH₄)

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Summary (CH₄)

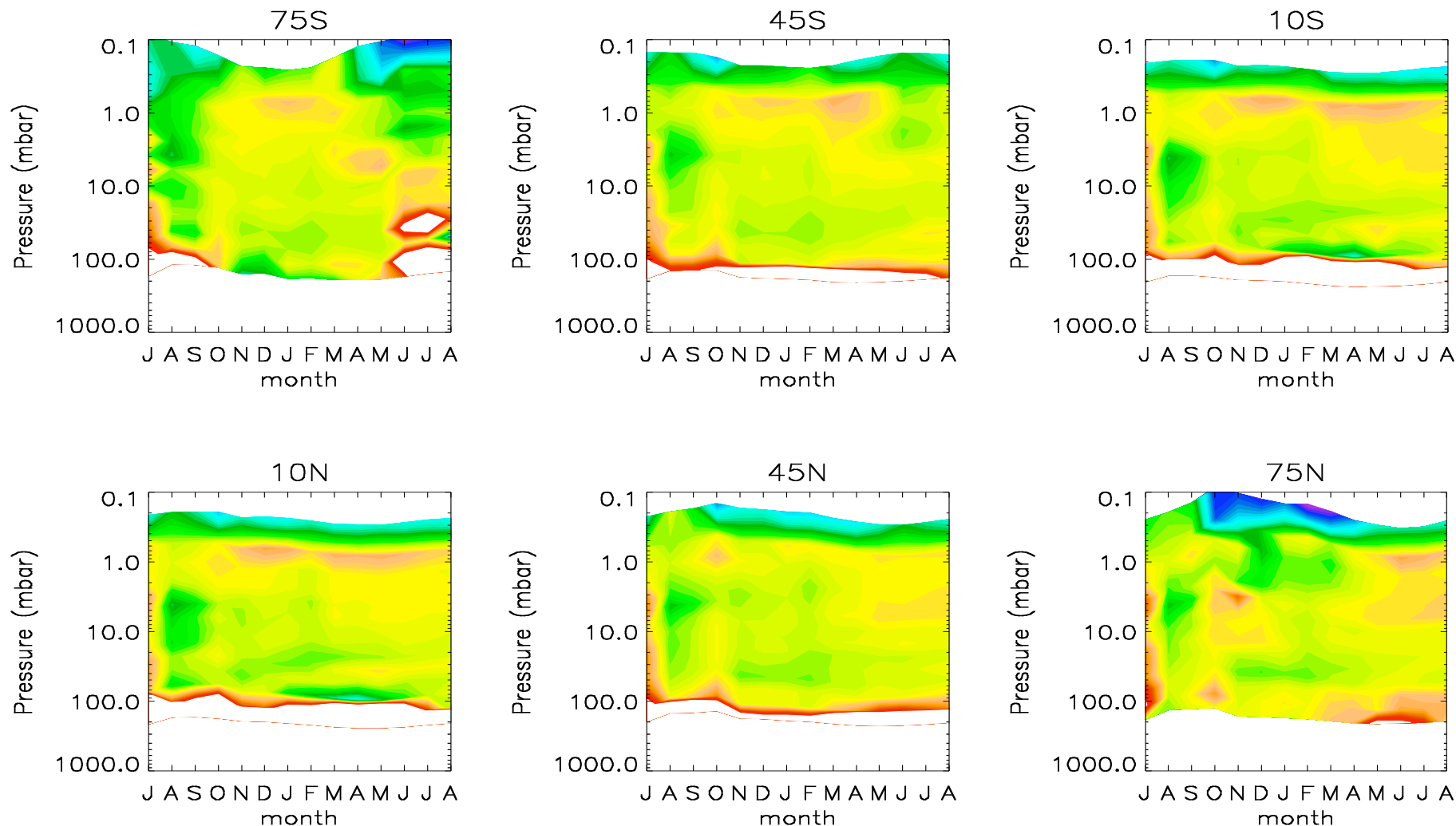
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- Generally higher than climatology at lowest altitudes, particularly in equatorial regions
- Unexpectedly low values at 18km March-June 2003

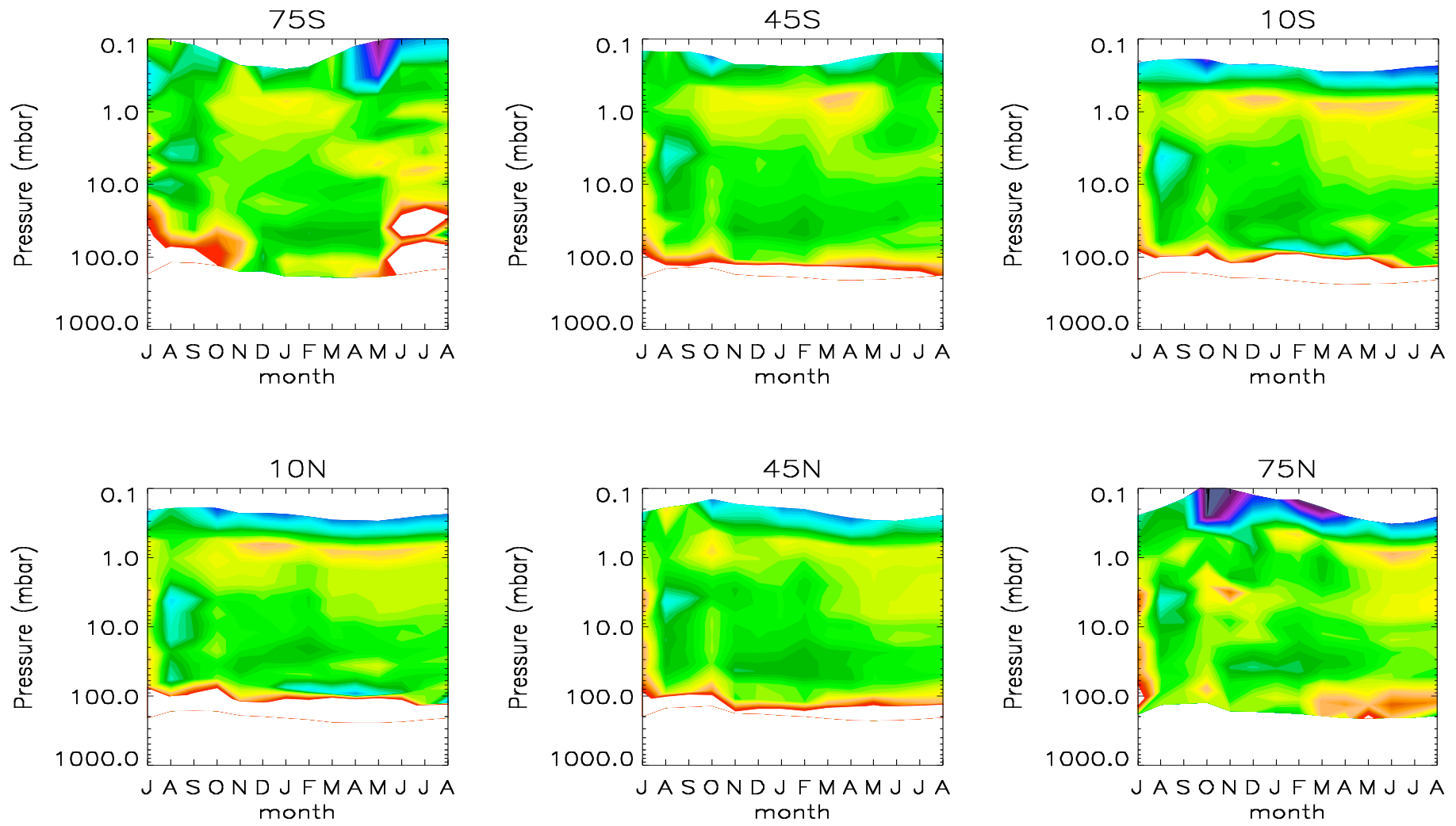
Time series ($\text{H}_2\text{O} + 2\text{CH}_4$)

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MIPAS - climatology (H₂O + 2CH₄)

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Summary



- Monthly mean profiles of H₂O and CH₄ have been calculated from the MIPAS operational L2 product.
- In general, the profiles show features that would be expected from climatology.
- However, there are some anomalous features, which should be investigated further.