TITAN AERONOMY & CLIMATE

WORKSHOP

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REIMS, CHAMPAGNE-ARDENNE, FRANCE.

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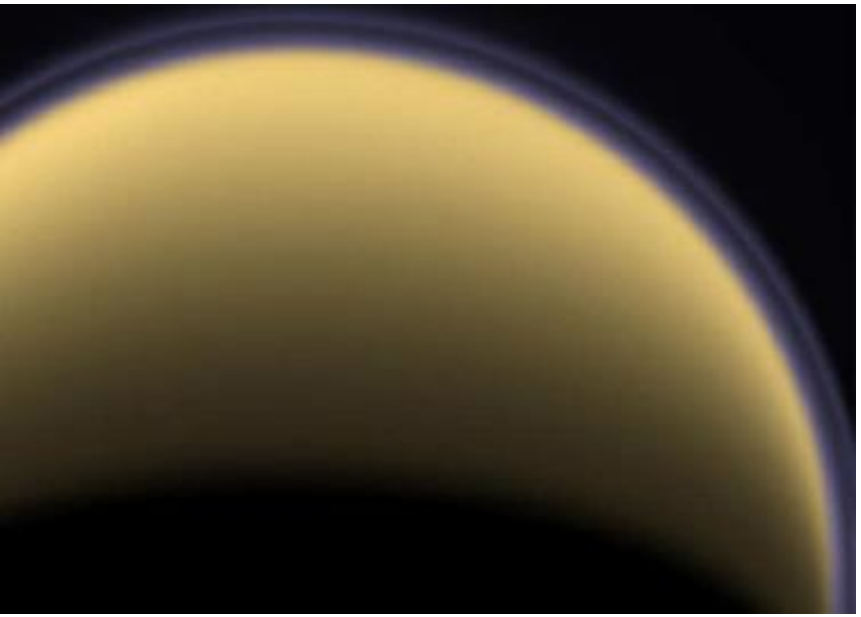

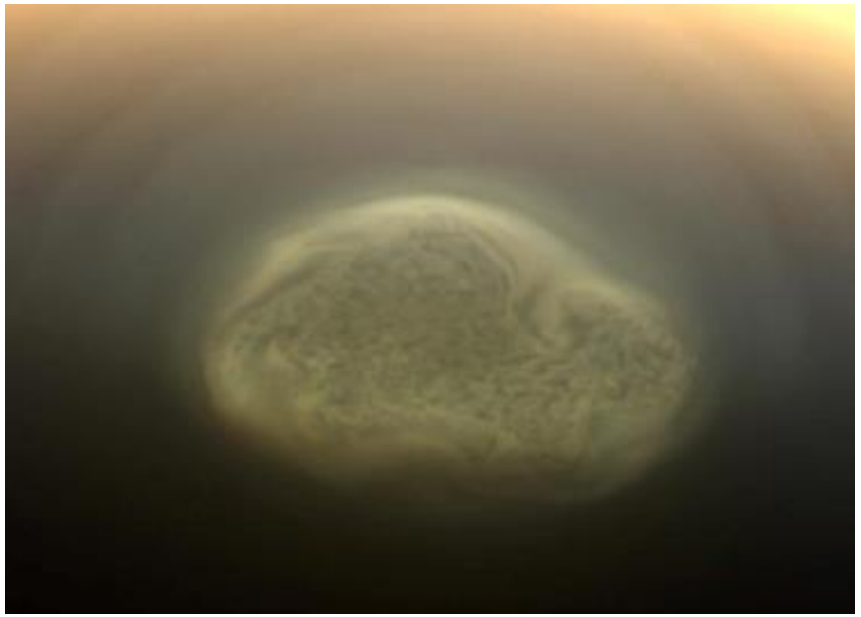

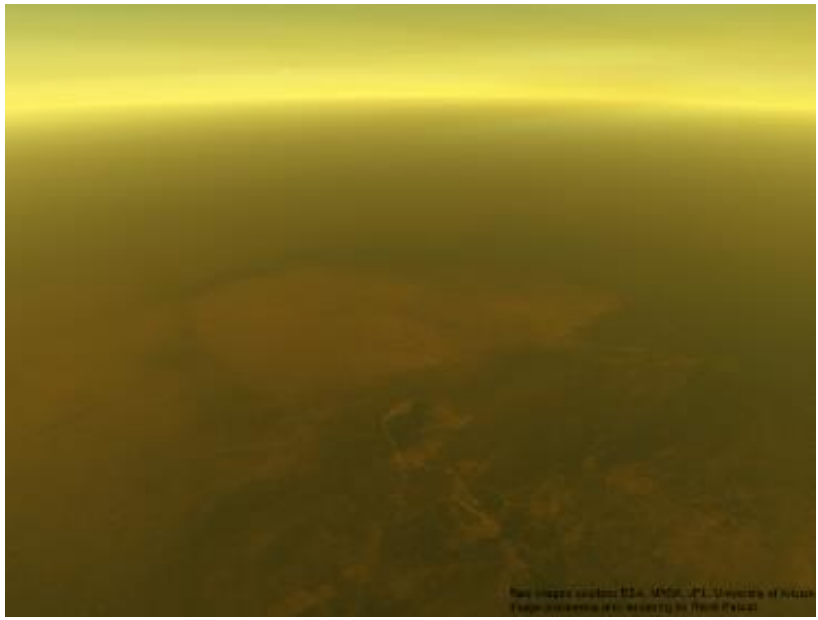

Topics

- Atmospheric structure and aeronomy
- Aerosol formation and properties
- Composition and seasonal cycle

Main findings

- **Prebiotic photochemistry** – Discoveries by the Cassini mission lead to a paradigm shift from “photochemical processes increase in complexity while products reach dense layers and liquid phases” to “photochemical processes are extremely complex in the highest layers”
- chemical processes which occur on Titan are unique in the solar system, and they constitute, so far, the **only example of active prebiotic chemistry in action**
- **Methane cycle**: complex cycle analogous to the water cycle on Earth. On Titan, four reservoirs (clouds, atmosphere, lakes and seas, and potential subsurface tables) exchange methane and other species on annual and longer periods.

Main findings

- There is a need for **comparisons and synergy between instruments**
  - Comparison among multiple instruments is not sufficiently developed
  - this workshop allowed much interaction between the scientists processing data from different instruments
  - organize focused meetings to compare results and work on specific problems

- **How to maintain interest beyond the end of the Cassini mission ?**
  - The Cassini discoveries have led to the development of lab measurements – need for R&A programs in the different countries
  - Keep the momentum by organizing dedicated sessions at main meetings

- **How to prepare the post-Cassini era ?**
  - Earth-based observations (ALMA, JWST, …)
  - Medium class missions (ESA/M5 and NASA/NF4)
  - Preparation for the next DS