



Federico Fabiano

e-mail:  
[f.fabiano@isac.cnr.it](mailto:f.fabiano@isac.cnr.it)

github:  
<https://github.com/fedef17>

orcid:  
<https://orcid.org/0000-0002-2135-3978>

site:  
<https://www.isac.cnr.it/en/users/federico-fabiano>

# Federico Fabiano

## Physicist and climatologist

I studied Physics in Pisa, specializing in Astrophysics, and later attended a PhD in Geophysics at the University of Bologna, with focus on planetary atmospheres. I am currently part of the climate dynamics research unit at CNR-ISAC in Bologna. My main research interests:

- Large-scale atmospheric circulation at mid-latitudes, weather regimes, future trends under climate change
- Climate model simulations of present-day and future scenarios, diagnostics of model performance
- Energy balance and radiation in climate models. Equilibrium climate sensitivity (ECS) and climate feedbacks. Long-term trends and non-linearities in the climate response.
- Radiative transfer in LTE and non-LTE, fast parameterizations for climate models

Other research interests: dynamical systems, generalized climate theory, ecological economics. Python enthusiast. Climate worried. Supporting open science.

## Research Experience

### 1 December 2021 - now, CNR - ISAC, Bologna (Italy)

- *Researcher*, Climate Dynamics division

### 18 June 2018 - 30 November 2021, CNR - ISAC, Bologna (Italy)

- *Post-doc Researcher*, Climate Dynamics division

### 1 November 2014 - 7 May 2018, Università di Bologna, Bologna (Italy)

- *PhD in Geophysics*
- Thesis: *Inversion of remote sensing measurements of Middle and Upper Planetary Atmospheres under non-equilibrium conditions*

### January - October 2014, CNR - ISAC, Bologna (Italy)

- *Research assistant*, Jiram (JUNO) Collaboration

## Education

### 2007 - 2013, Scuola Normale Superiore, Pisa (Italy)

- *Diploma in Physics*, 70/70 *cum laude*

### 2010 - 2013, Università di Pisa, Pisa (Italy)

- *Master degree in Physics (major in Astrophysics)*, 110/110 *cum laude*
- Thesis: *Non-LTE processes in the study of radiative transfer in planetary atmospheres*



Federico Fabiano

e-mail:  
f.fabiano@isac.cnr.it

github:  
https:  
//github.com/fedef17

orcid:  
https://orcid.org/  
0000-0002-2135-3978

site:  
https://www.isac.  
cnr.it/en/users/  
federico-fabiano

**April - July 2013, Instituto de Astrofísica de Andalucía, Granada, (Spain)**

- *Erasmus Placement*, Supervisor: M. Lopez-Puertas (Granada)

**2007 - 2010, Università di Pisa, Pisa (Italy)**

- *Bachelor's Degree in Physics*, 110/110 *cum laude*

## Teaching Experience

**April 2018 - September 2018, Università di Bologna, Bologna (Italy)**

- *Teaching assistant* of Physics (Electromagnetism) at the Department of Engineering

**October 2016 - February 2017, Università di Bologna, Bologna (Italy)**

- *Teaching assistant* of Physics (Electromagnetism) at the Department of Engineering

**May 2018, Liceo Montessori, Porretta Terme (Bologna, Italy)**

- High school substitute: *Math and Physics teacher*

**October 2014, Liceo E. Fermi, Bologna (Italy)**

- High school substitute: *Physics teacher*

## Computer and programming skills

- Familiar with Python language, UNIX environment and bash scripts.
- Good knowledge of Fortran language.
- Basic knowledge of Matlab, C++, IDL.
- Coding experience: some of the projects I'm developing are freely available on my github (<https://github.com/fedef17>).

## Languages

- Italian (Native), English (B2 level), Spanish (fluent), German (B1 level)

## Publications

*Atmospheric circulation, climate modelling*

- Fabiano, F., Meccia, V. L., Davini, P., Ghinassi, P., and Corti, S. (2021). A regime view of future atmospheric circulation changes in northern mid-latitudes. *Weather and Climate Dynamics*, 2(1):163–180
- Giuntoli, I., Fabiano, F., and Corti, S. (2021). Seasonal predictability of Mediterranean weather regimes in the Copernicus C3S systems. *Climate Dynamics*
- Fabiano, F., Christensen, H., Strommen, K., Athanasiadis, P., Baker, A., Schiemann, R., and Corti, S. (2020). Euro-Atlantic weather Regimes in the PRIMAVERA coupled climate simulations: Impact of resolution and mean state biases on model performance. *Climate Dynamics*, 54(11-12)



Federico Fabiano

e-mail:  
f.fabiano@isac.cnr.it

github:  
<https://github.com/fedef17>

orcid:  
<https://orcid.org/0000-0002-2135-3978>

site:  
<https://www.isac.cnr.it/en/users/federico-fabiano>

- Meccia, V. L., Fabiano, F., Davini, P., and Corti, S. (2020). Stochastic Parameterizations and the Climate Response to External Forcing: An Experiment With EC-Earth. *Geophysical Research Letters*, 47(3):e2019GL085951

### *Planetary atmospheres*

- **Fabiano, F.** and *et al.*, M. L. P. (2017). CO concentration in the upper stratosphere and mesosphere of titan from VIMS dayside limb observations at 4.7  $\mu\text{m}$ . *Icarus*, 293:119–131
- Dinelli, B. M. and **Fabiano, F.** *et al.* (2017). Preliminary jiram results from juno polar observations: 1. methodology and analysis applied to the jovian northern polar region. *Geophysical Research Letters*, 44(10):4625–4632. 2017GL072929
- Adriani, A., Mura, A., Moriconi, M. L., Dinelli, B. M., and **Fabiano, F.** *et al.* (2017). Preliminary jiram results from juno polar observations: 2. analysis of the jupiter southern h<sub>3</sub><sup>+</sup> emissions and comparison with the north aurora. *Geophysical Research Letters*, 44(10):4633–4640. 2017GL072905
- Moriconi, M. L., Adriani, A., Dinelli, B. M., and **Fabiano, F.** *et al.* (2017). Preliminary jiram results from juno polar observations: 3. evidence of diffuse methane presence in the jupiter auroral regions. *Geophysical Research Letters*, 44(10):4641–4648. 2017GL073592
- Adriani, A., Mura, A., Orton, G., Hansen, C., Altieri, F., Moriconi, M., Rogers, J., Eichstädt, G., Momary, T., Ingersoll, A., et al. (2018). Clusters of cyclones encircling jupiter’s poles. *Nature*, 555(7695):216
- *et al.*, A. M. (2017a). Infrared observations of jovian aurora from juno’s first orbits: Main oval and satellite footprints. *Geophysical Research Letters*, 44(11):5308–5316
- *et al.*, G. S. (2017c). Characterization of the white ovals on jupiter’s southern hemisphere using the first data by the juno/JIRAM instrument. *Geophysical Research Letters*, 44(10):4660–4668
- *et al.*, D. G. (2017b). Preliminary results on the composition of jupiter’s troposphere in hot spot regions from the JIRAM/juno instrument. *Geophysical Research Letters*, 44(10):4615–4624
- *et al.*, F. A. (2016). Mapping of hydrocarbons and h<sub>3</sub><sup>+</sup> emissions at jupiter’s north pole using galileo/nims data. *Geophysical Research Letters*, 43(22):11,558–11,566. 2016GL070787

## Science communication

### June 2017 - Co-author of *Atmosfera Possibili*

- An exhibition on climate change and the related societal challenges