

# Emanuele Di Carlo

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## Curriculum Vitae

### Personal Data

Birth place and date L'Aquila, Italy, 31/05/1988  
Nationality Italian  
Address Scoppito (AQ), Via Salere 9

### Position

#### PhD Student

since November 2018  
Institution Alma Mater Studiorum Università Di Bologna

### Education

03/2015-10/2018 **Master Degree in Physics**, *University of L'Aquila*, L'Aquila.  
09/2007-03/2015 **Bachelor Degree in Physics**, *University of L'Aquila*, L'Aquila.  
2001-2007 **Scientific high school degree**, *I.T.I.S. Amedeo D'Aosta*.

### Conference Abstract

june 5-9 2017 **OpenIFS user meeting 2017**, *Poster on: "Sea Surface Temperature anomalies and storm tracks on an aqua-planet using OpenIFS"*, ICTP, Trieste - Italy.

### Experiences

**Rossby waves:**, *During my Bachelor Degree in Physics, in the course of "Physics of fluids", I wrote a MATLAB script to represent the formation and time evolution of a Rossby wave in a barotropic fluid..*

**Ozone chemistry box model:**, *During my Master's Degree, in the course of "Physics of the Atmosphere and of the Ocean", I developed, using MATLAB, a simple box model to solve the equations of ozone chemistry..*

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**OpenIFS user meeting 2017:**, I leaded a group of three PhD students during the meeting experiments with OpenIFS..

## Languages

Italian Native proficiency  
English A2

## Skills

Operating System Windows XP, Windows 10, UNIX, Linux  
Text editors Office, LaTeX, Emacs, Gedit  
Script Bash, Matlab(Good)  
Languages C++, Fortran77/90 (Fair)  
Python(poor)  
Atmospheric models Open-IFS

## Hobbies

I am an actor of the cultural association "I MONELLI" since 2007 and member of the Governing Board of the same association since november 2016.

Others Mountain bike, Painting and Scale models

## Attachments

- 1 Bachelor Thesis
- 2 Master's thesis

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## Attachments

### Attachment 1: Bachelot Thesis Topic

In my bachelor thesis I studied the runaway greenhouse effect on Venus. I used an analytic radiative-convective model for the planetary atmospheres developed by Robinson T.D. and Catling D.C. The main aim was to check the possibility of using that model for a particular atmosphere like the venusian one and, if it was possible, looking for a tropopause.

### Attachment 2: Master's Thesis Topic

The aim of my masters thesis work is to determine how sea surface temperature (SST) anomalies affect the east-west tilt of the mid-latitude storm tracks. This is an important research question as many climate models are still unable to correctly represent the North Atlantic Storm track: the common bias is a storm track which is too zonal. The main tool for this project is the OpenIFS numerical model. OpenIFS is a version of ECMWFs state-of-the-art forecasting system which is available to universities free of charge under licence. Aqua-planet simulations have the advantage that they are much easier to control and the idealised nature makes results easier to interpret. However, as aqua-planet simulations contain no orography and are zonally symmetric, storm tracks simulated by aqua-planet models are always completely zonal. Therefore the first task will be to add longitudinally confined SST anomalies to create an east-west tilt in the storm track. The second aim will be to determine the sensitivity of the storm track structure to different localised SST anomalies. If time permits, additional warm SST anomalies may be added to high latitude locations in the aqua-planet simulations as a proxy for sea-ice decrease.