

# Madeleine NICOLAS

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As someone who has navigated different branches and specialties in environmental sciences, I strongly believe in the use of computer and data science in shaping a better and more sustainable future.

## Key Skills

- Remote Sensing & GIS
- Environmental modeling
- Strong scientific background
- Proficient in programming
- Written and oral communication

## Computer Skills

**Google Earth Engine**

**ArcGIS / QGIS**

**Python** (numpy, arcpy, pandas)

**JavaScript**

**R / Matlab / Scilab**

**SQL**

## Languages

FULLY TRILINGUAL

- English
- French
- Spanish

## Publications

- Founder and author of a blog dedicated to environmental science and technology
- Main author of one scientific paper (<https://doi.org/10.1016/j.jhydrol.2019.04.003>) and five conference posters
- Attendance to national and international conferences (AGU, EGU, CMWR, IAHS)

## Interests

### Hobbies

Cooking, arts and crafts  
Sustainable living, vegetarianism & veganism, zero/low waste

### Reading

Dystopian novels, non-fiction, romantic novels

### Sports

Jogging (half-marathon), walking, cycling

## Other

### Citizenship

USA, France, Mexico

### Living and work experience

France, Mexico, India, UK

## Professional Experience

📅 2020 – Present 📍 Mexico City

### Environmental Data Scientist (Tech Lead)

#### Cultivo Land PBC

My primary focus at Cultivo has been leveraging remote sensing technologies and data intelligence to find and evaluate high-quality nature restoration projects. Highlights of my contributions include:

- **Developed and maintained geospatial algorithms for natural capital assessment** (linear regression, cloud masking and scaling, filtering, reducing...) encompassing themes such as changes in land cover and vegetation, climatic, hydrological, and ecological context, carbon capture potential, and propensity to droughts and floods.
- **Lead collaborative efforts with multidisciplinary teams to conduct comprehensive project feasibility assessments.** This involves defining critical data requirements, addressing complex environmental challenges, and ensuring our approaches align with the latest scientific developments.
- **Specialized in utilizing data analytics and visualization techniques to interpret environmental data,** enabling clearer insights into ecological trends and patterns.
- **Authored extensive documentation to effectively communicate complex geospatial algorithmic processes and underlying scientific principles.** Ensure these materials are accessible to both technical and non-technical stakeholders.

## Education

📅 2015 – 2019 📍 Hyderabad (India) / Rennes, Montpellier (France)

### PhD in Environmental and Earth Sciences

#### NGRI / University of Rennes / BRGM NRE

Impact of Heterogeneity on Recharge in Crystalline Rock Aquifers in Semi-Arid Rural India

Objectives:

- Quantifying and modelling the effects of medium to large-scale heterogeneities on artificial recharge
- Identifying and modelling factors influencing the large-scale heterogeneities on natural recharge under anthropic influence

Download thesis here (English with French summary available): <https://hal.science/tel-02295988>

📅 2013 – 2015 📍 Paris

### MSc in Science of the Universe, Environment, Ecology Hydrology/Hydrogeology

Graduated with honors (ranked 2nd)

#### Sorbonne University

February – July 2015 **James Hutton Institute (Aberdeen, Scotland)**  
Internship studying the effects of climate and land use change on Scotland's water resources.

May – June 2014 **INRAE, National Institute of Science and Technology for Environment and Agriculture (Antony, France)**  
Internship estimating the impact of climate change on river flows in France for the 21st century.

📅 2010 – 2013 📍 Paris

### BSc in Earth Sciences

#### Sorbonne University

Graduated with honors (ranked 3rd)