



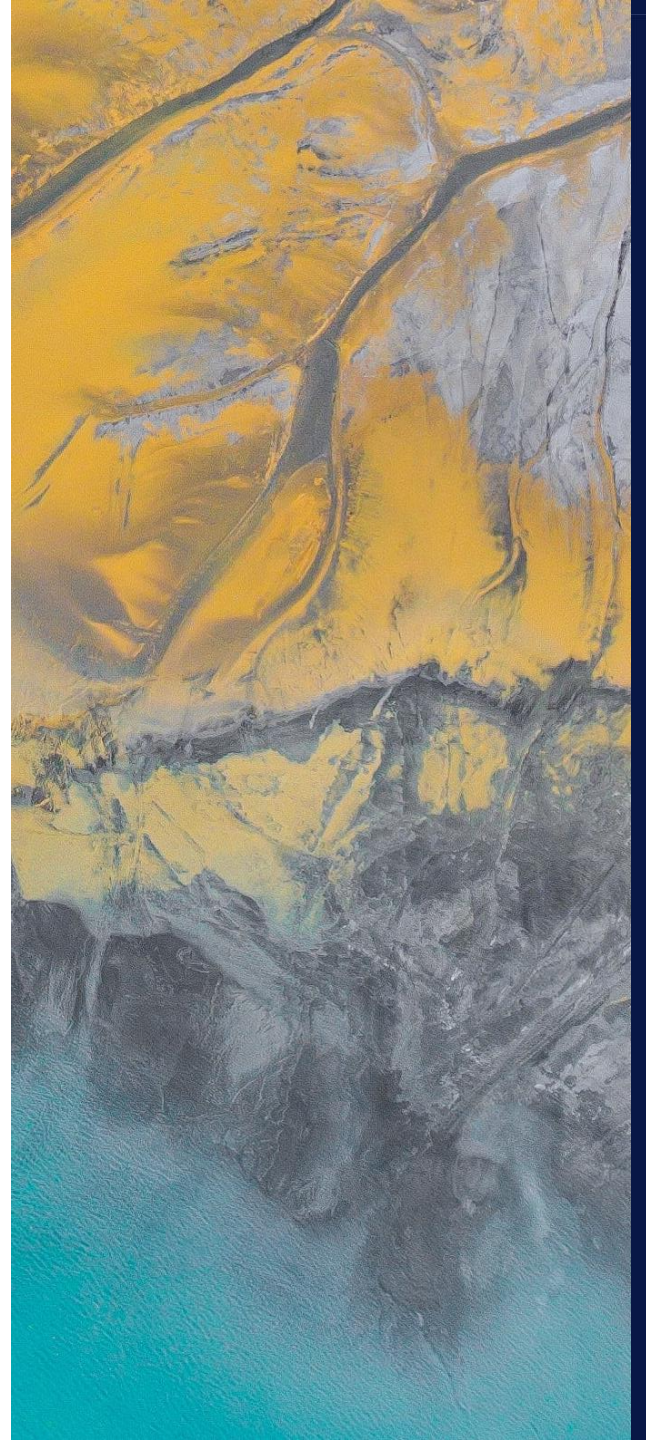
DESCARTES

01 Descartes presentation 5 min

02 Use case 5 min

03 Recruitment & career tips 5 min

04 Q&A session 5 min



An aerial photograph of a river delta, showing a complex network of channels and distributaries. The water is a deep blue, and the land is a lighter, sandy brown. A white rectangular box is overlaid on the center of the image, containing the text '01 Descartes' presentation'.

01 Descartes' presentation



Marlène Luce

 Chief of Staff

 Part of Descartes' team since Sep. 2020

Academic curriculum

- ENS Ulm (B/L 2013, Master APE)
- HEC Paris

Previous experience

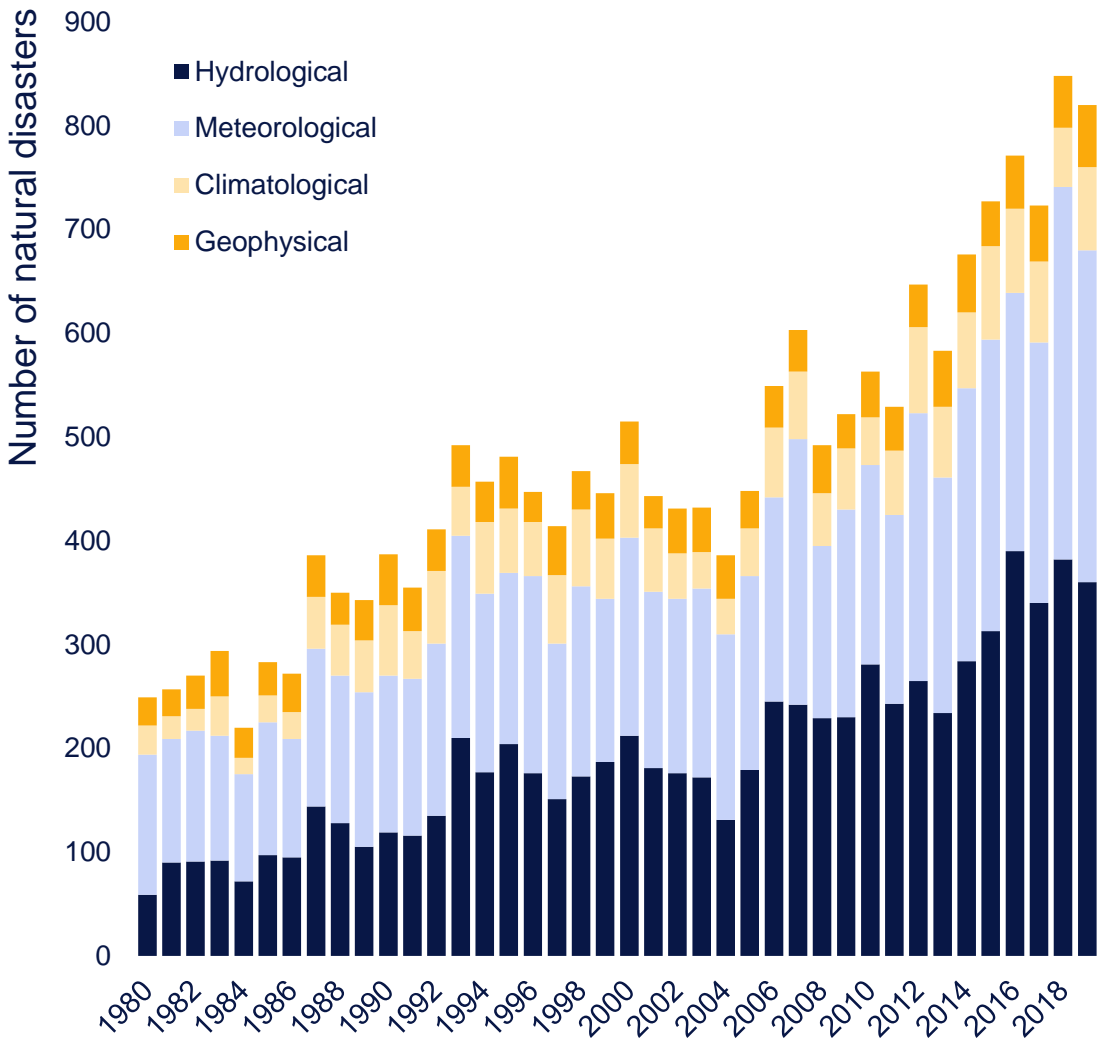
- Strategy intern at SCOR & AXA UK
- Consultant at Roland Berger

MY ROLE AT DESCARTES

- International expansion
- Long-term strategy projects
- Investors communication

Losses from natural catastrophes are on the rise

Natural disasters by cause, 1980 to 2019



Hurricanes (HIM in 2017)



Freeze in Texas (2021)



Wildfires in Australia (2021)



Flood in Germany (2021)

Source: Munich Re

Descartes makes insurance contracts without “experts”



1 Indemnity based on a **parameter** derived from sensor or satellite data



2 **Stochastic models** to assess the **price of policies**



3 **Policy is triggered** => **client is paid** in a few days

➤ Example: Frost cover

If the temperature is below 0°C for :

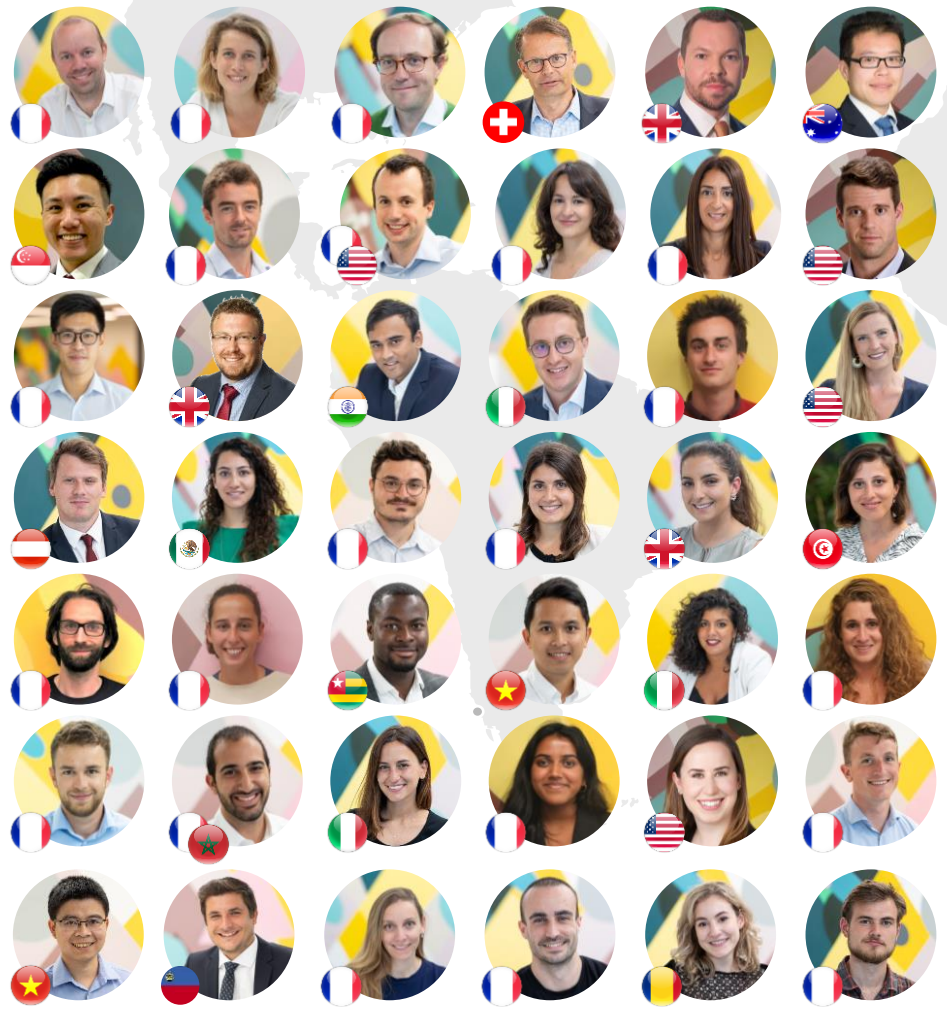
- 5 consecutive days, client receives 100 euros per hectare
- 10 consecutive days, client receives 300 euros per hectare



Not gambling

Payments must be based on economic losses

Team of 45+ with 16+ different nationalities



Our 15+ data scientists come from:



CentraleSupélec



University of St.Gallen



and hold MSc or PhD in meteorology, physics, applied mathematics...

An aerial photograph of a river delta, showing a complex network of channels and distributaries. The water is a deep blue, and the land is a lighter, sandy brown. A white rectangular box is overlaid on the center of the image, containing the text '02 Use case'.

02 Use case



Jean Jouhaud

 Climatologist & Modeler

 Part of Descartes' team since April. 2019

Academic curriculum

- PhD in climate modeling – LMD (X-ENS-Sorbonne)
- MSc in fluid dynamics – Imperial College London
- Engineer – Ecole des Mines de Nancy

Past projects at Descartes

- Creation of the hail model
- Creation of the drought model

MY ROLE AT DESCARTES

- Develop a numerical model to estimate hail hazard in the world
- Develop a tool to price hail insurance covers for various assets
- Document, follow-up and plan R&D activities

➤ HAIL MODEL – context

- Hail is one of the most damaging peril in the world
- People and companies lose billions each year around the world
- Insurers usually struggle modelling hail hazard accurately
- Real need for accurate hail modelling and hail insurance covers



Large-hail damages on a car



Large-hail damages on solar panels



*Largest hailstone (16cm diameter)
recorded in Australia – 19th of
October 2021*

➤ SATELLITE MODEL – Continental estimation of hail hazard



« From thunderstorm frequency and atmospheric conditions to hail hazard »

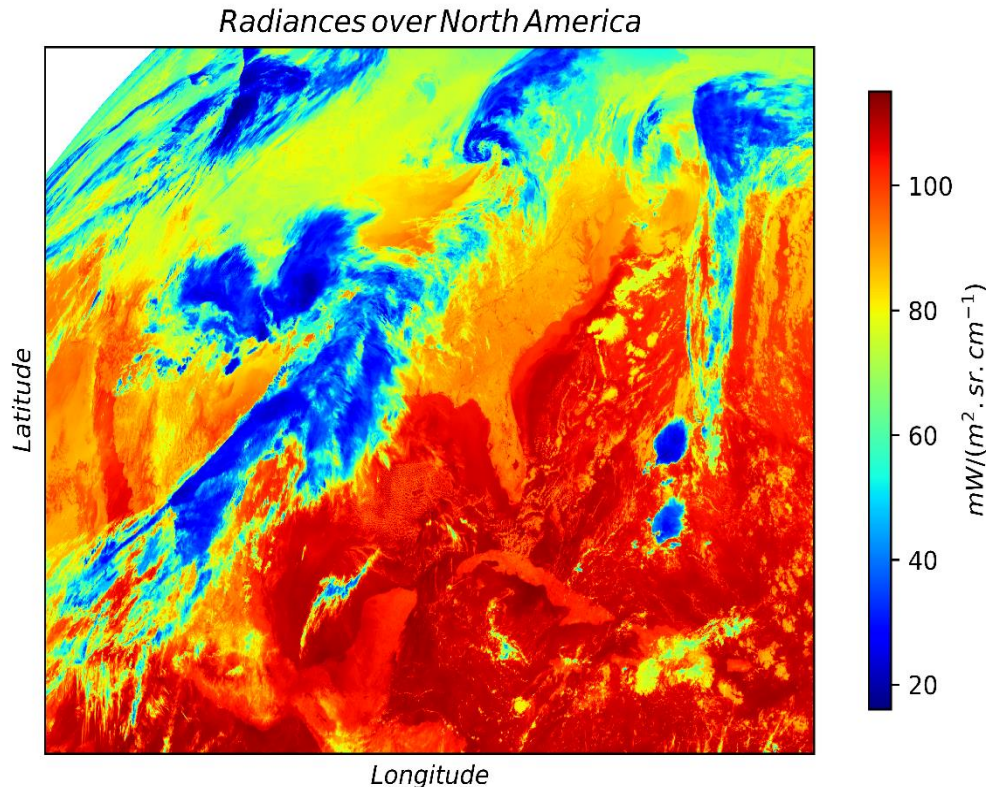


Figure 1: Infrared radiances captured by satellite GOES-R the 23rd of April 2020 at 10:26 UTC over North America.

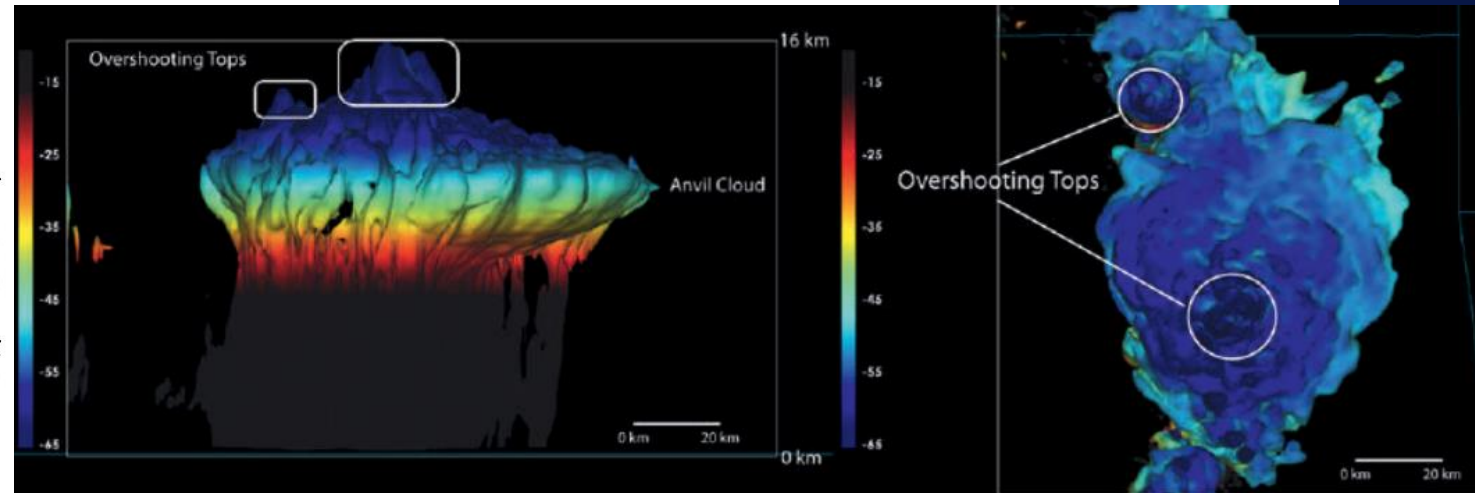


Figure 2: Typical thunderstorm cloud, characterized by its **overshooting top(s)**, that can be detected by satellite imagery.

➤ SATELLITE MODEL – Continental estimation of hail hazard



« From thunderstorm frequency and atmospheric conditions to hail hazard »

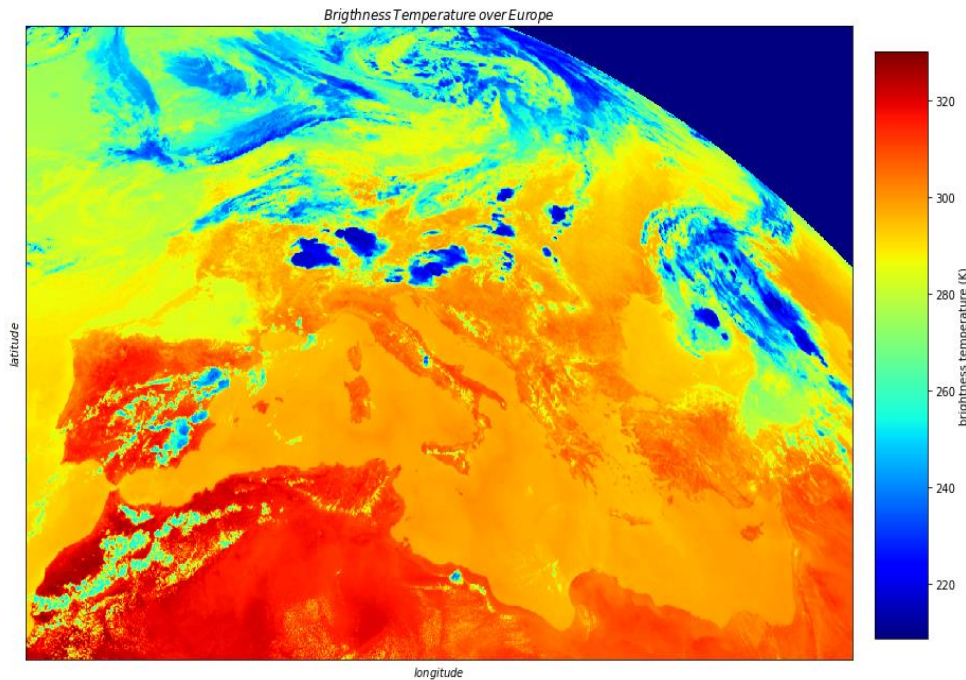


Figure 1: Brightness Temperatures captured by satellite MSG-4 the 15th of August 2021 at 14:00 UTC over North Africa and Europe.

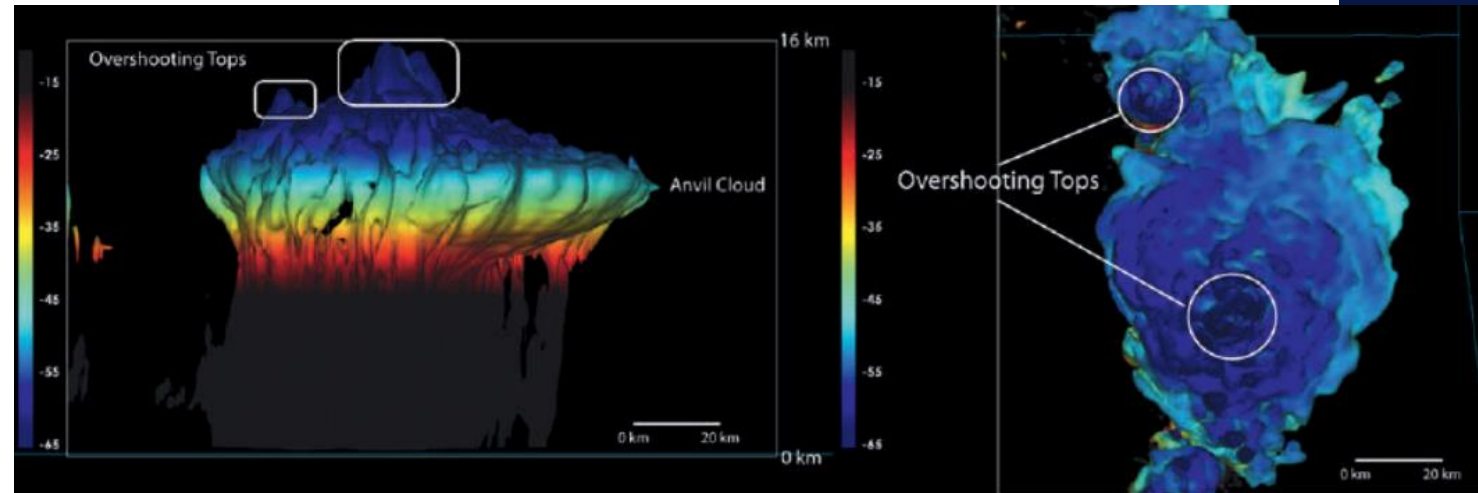


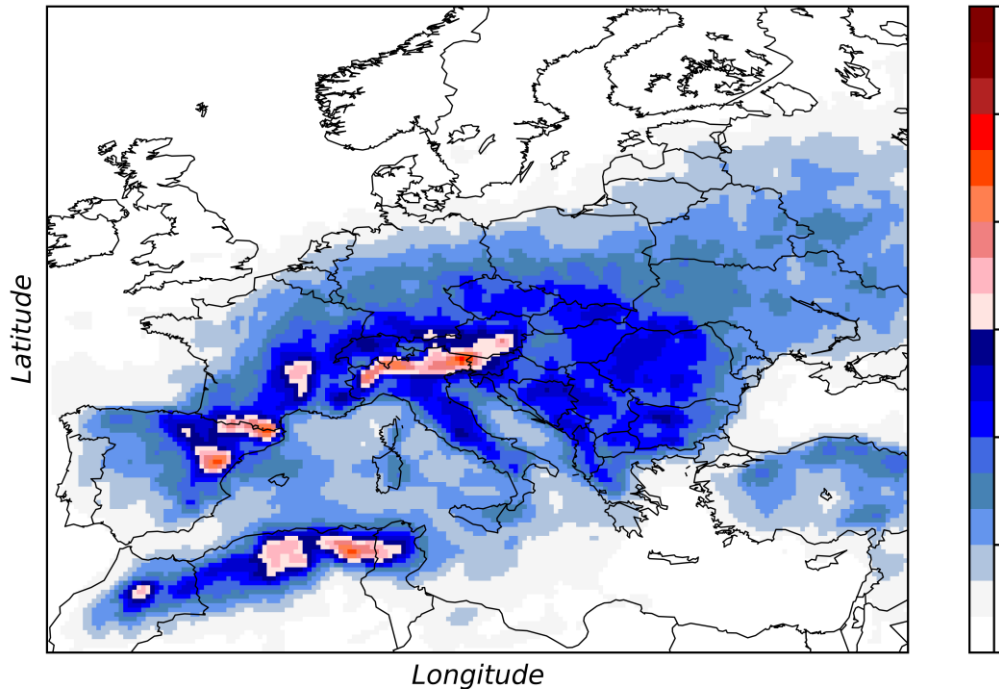
Figure 2: Typical thunderstorm cloud, characterized by its **overshooting top(s)**, that can be detected by satellite imagery.

➤ SATELLITE MODEL – Continental estimation of hail hazard

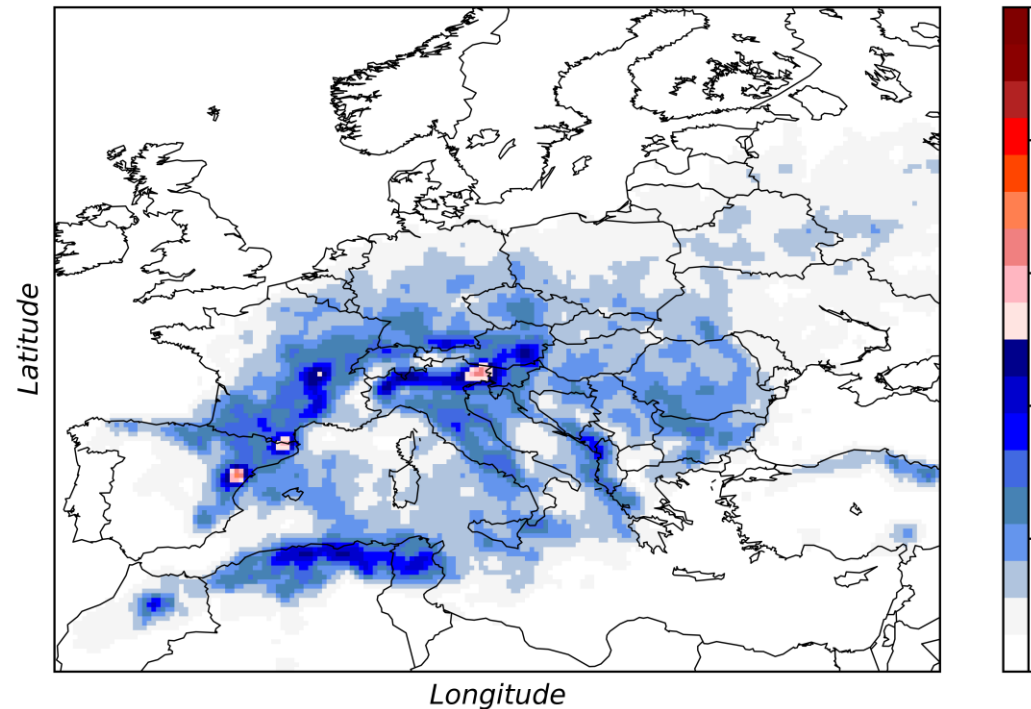
For each overshooting top, we check atmospheric reanalysis of:

- ✓ Altitude of freezing
- ✓ Deep layer wind shear
- ✓ Convective available potential energy
- If favorable atmospheric conditions, then large hail is more probable

Hailmap for hailstones > 0.5cm



Hailmap for hailstones > 2.0cm



➤ RADAR MODEL – Local analysis of hail events

« From radar scans and atmospheric conditions to hail event »

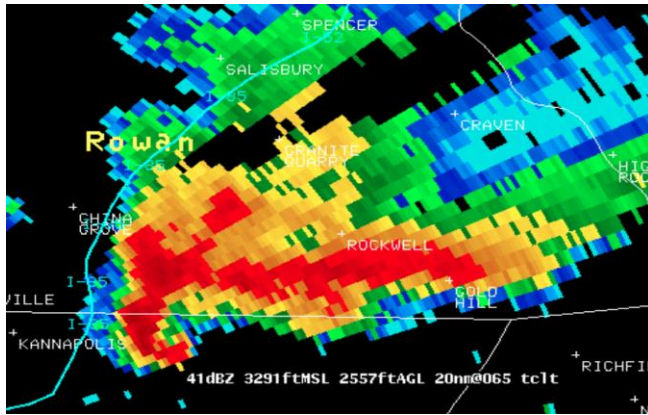


Figure 1: Raw radar reflectivity

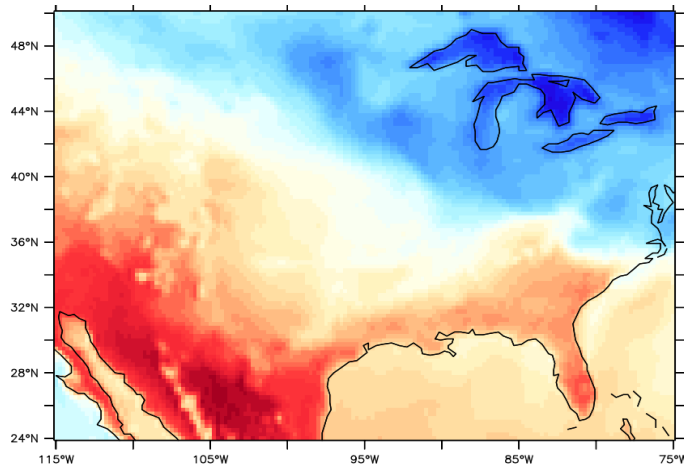


Figure 2: Ground temperatures

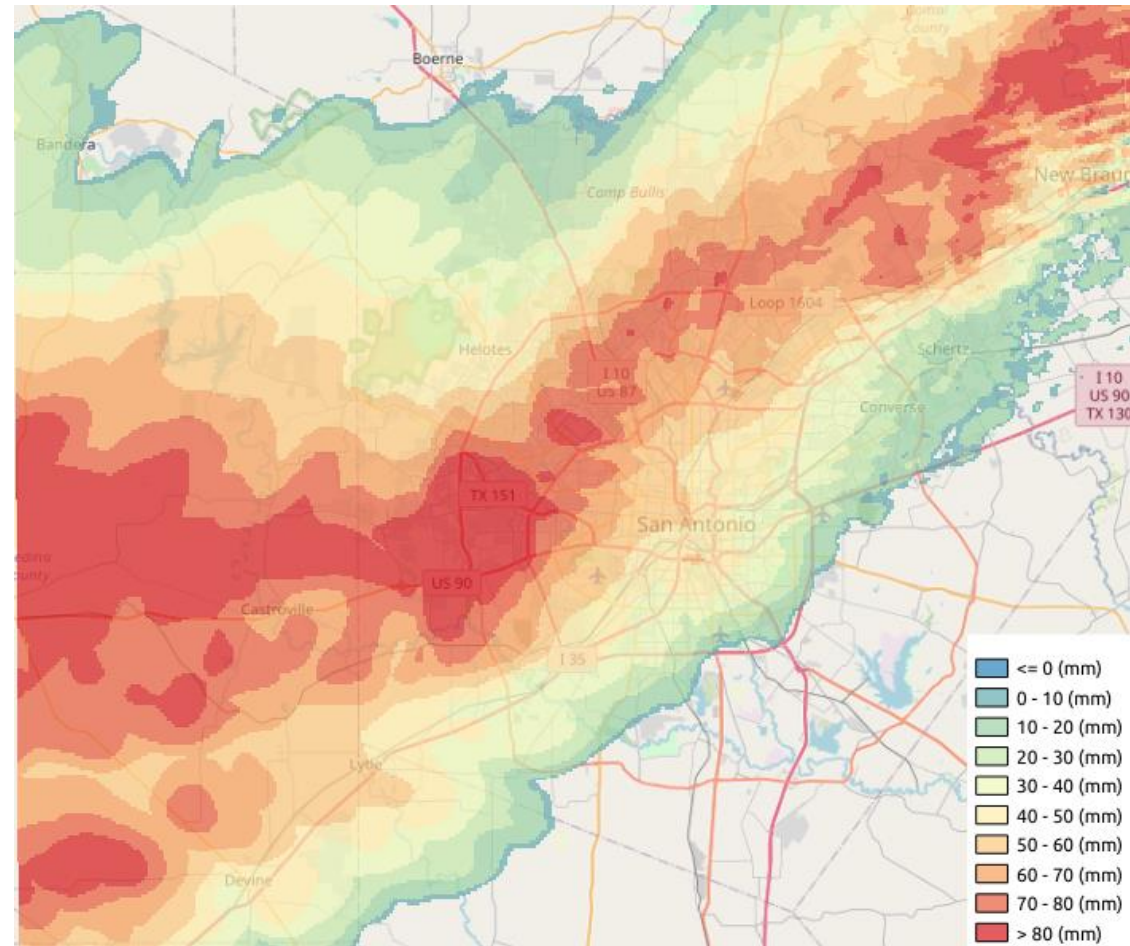


Figure 3: Hail track over San Antonio Texas the 29th of April 2021 from 00:00 to 04:00 UTC

An aerial photograph of a river delta, showing a complex network of channels and distributaries. The water is a deep blue, and the land is a lighter, sandy brown. A white rectangular box is centered in the middle of the image, containing the text '03 Recruitment & career tips'.

03 Recruitment & career tips



Alexandre CAMERON

 Sen. Data Scientist and Software Engineer

 Part of Descartes' team since Oct. 2020

Projects at Descartes

- Cyclone stochastic simulator
- Local Perturbation Model

Past jobs

- Faurecia: automotive supplier
- Dreamquark: autoML for bank and insurance

Academic curriculum

- PhD Physics LRA-LPS-ENS:
 - *Large scale effects in Turbulence*
with **M.-E. BRACHET** and **A. ALEXAKIS**
- Ecole Normale Supérieure Paris: Master in Physics

MY ROLE AT DESCARTES

- Industrialize scientific code
- Setup programming standard
- Automate code execution
- Organize team interaction

› Jobs for you

- Specialized researcher
- Data scientist / software engineer in a startup
- Data scientist / software engineer in IT service
- Consultant in a consulting firm
- Quantitative analyst in bank / energy sector
- Actuarial analyst in insurance



➤ Not for the moment

- >2 years experience
- Big tech
- Managing experience
- Business experience



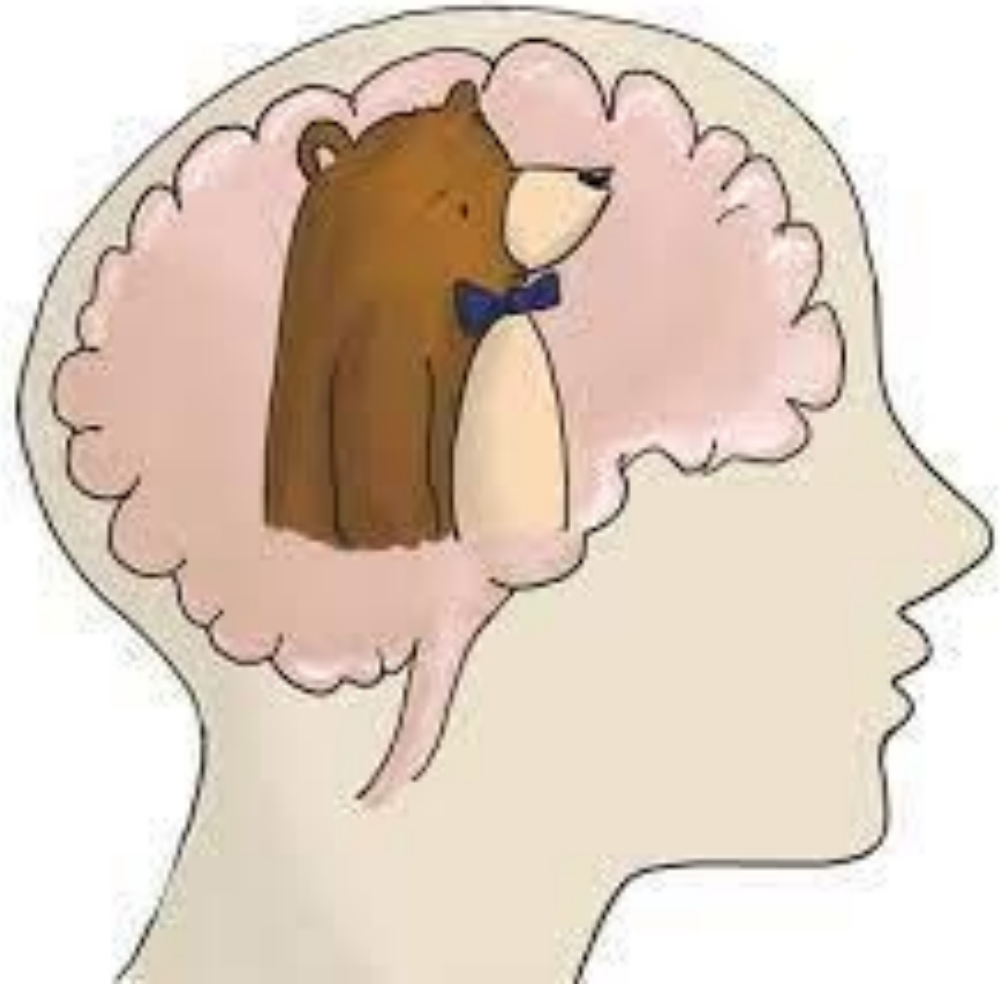
➤ How to **pitch** your PhD

- Present **something related** to your PhD in less than 1min
- Explain the **experience acquired**:
 - Follow a 3-year project
 - Find scientific references
 - Learn skills by yourself
 - Collaborate on an international project
 - Handle a budget for an experiment
 - Managed a research event
 - Manage an intern



› Bear in mind

- Your profile will be unexpected
- Don't go into details
- Private innovation is **not** fundamental research



➤ My journey to the private world



Advice

- Listen to advice don't always use them
- Be kind to everyone and say thank you

➤ Weighing the options

Research



- Freedom
- Interesting subject

Private sector

- Carrier evolution
- Salary
- Many possible jobs
- Able to change subject



- Salary
- Multiple Postdoc
- Only one subject
- Teaching
- Finding grants
- University politics

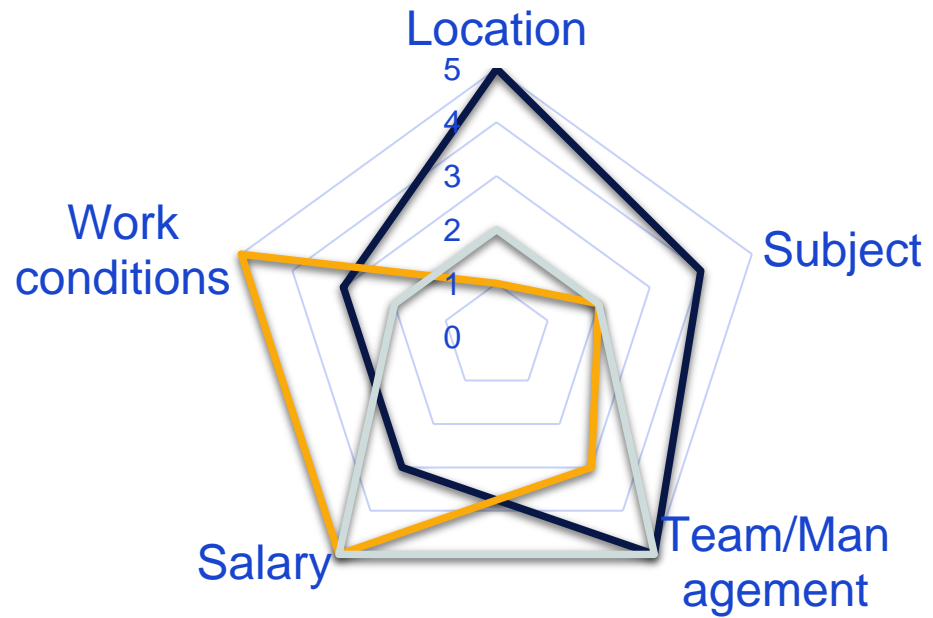
- No fundamental question
- Tasks imposed on you
- Discussion with business
- Company politics



Final decision

- What life do I want to have with my significant other ?

➤ Radar of opportunities



Guinness World Record for crushing concrete block with head



We are **hiring!**

Data Scientist
DevOps
Software engineer
...



Register to our **next webinar!**

Break into Data Science at Descartes

Register now!

December 8, 2021
6pm CEST


Vincent Forcadell
Data Scientist,
PhD candidate


Aicha Islane
Talent Recruiter &
HR analyst

DESCARTES



An aerial photograph of a river delta, likely the Nile, showing a complex network of channels and distributaries. The landscape is characterized by a mix of yellowish-brown and greyish tones, suggesting different soil types or vegetation. The river flows from the top left towards the bottom right, where it branches out into a dense network of smaller channels. The overall texture is intricate and organic.

Questions?

Some tips to build a powerful resume

Your Full Name

Street Number | City, State, Country | Phone Number | Email Address

EXPERIENCE

Generic Capital Partners New York, NY
Equity Research – Summer Intern Summer 20XX

- Performed equity research of companies in the utility sector
- Utilized the DuPont formula to value companies based on ROE
- Made recommendation on which stocks to buy/sell as part of a long/short investment strategy
- Entered financial statements into Excel and performed historical analysis of key ratios
- Build a forecast based on input from consensus estimates and internal opinions of the businesses
- Used Bloomberg, Reuters, and Excel extensively

Synonymous Equity Partners New York, NY
Sales & Trading – Summer Intern Summer 20XX

- Performed equity research of companies in the utility sector
- Utilized the DuPont formula to value companies based on ROE
- Made recommendation on which stocks to buy/sell as part of a long/short investment strategy
- Entered financial statements into Excel and performed historical analysis of key ratios
- Build a forecast based on input from consensus estimates and internal opinions of the businesses
- Used Bloomberg, Reuters, and Excel extensively

Non-Finance Job New York, NY
My First Job – Summer Intern Summer 20XX

- Learned the value of hard work
- Demonstrated I'm responsible, reliable, and willing to do any type of work
- Earned money to pay for school
- Learned social skills that allow me to work in an office environment
- Show I'm a well-rounded person, not just really smart

EDUCATION

Dartmouth College City, State
Bachelor of Arts, Major in Economics, Minor in History 20XX – 20XX

- Cumulative GPA: 3.8/4.0
- Varsity Sport – starter on the varsity sports team all four years; 20+ hours per week
- President, Student Club – responsible for managing all aspects of student run club
- Study Abroad – Exchange in foreign country

ADDITIONAL INFORMATION

- Candidate for CFI's Financial Modeling & Valuation Analyst (FMVA)TM designation
- Activities and hobbies –yoga, piano, travel, food and experimental cooking
- My idols – Ray Dalio, Charlie Munger, Michael Mauboussin
- Other interesting information

• Usual structure

- Experience (antechronological order; state clearly your position, the location and the lab/company)
- Education (antechronological order)
- Additional information (languages spoken, volunteering activity, softwares that you master, interest & hobbies...)

• For the private sector, **keep it short** (1 page max)

• Elements to emphasize

- Knowledge (savoir)
- Hard skills (savoir-faire)
- Soft skills (savoir-être)

• It is **not mandatory to put a picture** of yourself (in France at least)

• Even in France, the resume should be **in English**

Four tips to be successful during an interview

1 Prepare

- **Get to know the company** (visit the website/LinkedIn, attend events)
- Understand the **job** (read thoroughly the job letter)
- Be ready to explain **why you are motivated for this position and why your experiences are relevant**

2 Be structured

- Be ready to present yourself, your experience and your motivation in a **structured, clear and concise way**

3 Be curious

- Ask questions about **the job**
- Ask questions about **the team**

4 Be yourself

- If the fit is not good, you'd better **know it upfront...**

Our approach has been granted **several awards** since our inception

Named **“Insurtech of the Year 2019”**

Finance Innovation



Won **“FinTech for Tomorrow”** 2018 Award

Finance for Tomorrow



Won **“Innovation prize of the Insurance Industry”** for satellite-based drought insurance



“Product Innovation” Gold trophy

Les Trophées de l'Assurance 2020



Winner of **“Pitch Your Startup 2020”** *ICT Spring Europe*



“Winner of Insurtech category” *European Finance Summit 2020 start-up competition*

