TOURISM SESSION
CLIMATE SERVICES CONFERENCE / BRUSSELS / 13.11.2019

FROM THE FORECAST TO THE DECISION:
C3S & PROSNOW, 2 EXAMPLES OF CLIMATE SERVICES

Sébastien Bruyère, senior consultant and project member of H2020 PROSNOW
• Independent engineering and design consultancy and provider of management consultancy
• Founded 1945 in Denmark
• 15,000 experts, 300 offices in 35 countries

• In the tourism sector:
  • co-coordination with Meteo France of H2020 PROSNOW
  • coordination of Copernicus C3S
  • tourism development in studies for territorial strategies (Grenoble, Morocco)
  • explorative work for the low carbon tourism
THE CURRENT STATUS OF CLIMATE CHANGE DATA WITH TOURISM

- Tourism is the forgotten sector in terms of use of climate data, only a few actors started to use climate forecast.
- Still, numerous simulations, indicators, or models are able to provide information.
- Information about tourism comfort, climate change impact or the management of environmental resources can then be provided to tourism main actors.
- But this requires a certain effort of data structuring and data display to match with existing practices and being understandable.
INTRODUCING 2 EXAMPLES...

**PROSNOW** : provision of a prediction system allowing for management and optimization of snow in Alpine ski resorts

[www.prosnow.org](http://www.prosnow.org)

**C3S** : sectoral information system for European tourism

[https://climate.copernicus.eu/](https://climate.copernicus.eu/)
C3S : sectoral information system for European tourism

https://climate.copernicus.eu/
A system built with and for users
European Tourism: Applications

Home | Case Studies | User guidance | About

Climate Suitability for tourism
Seasonal forecasts
Climate projections

Mountain Meteorology and Snow
Historical data
Climate projections

Fire Weather Index
Seasonal forecasts
Climate projections

Lake Surface Water Temperature
Historical data
Seasonal forecasts
Lake Surface Water Temperature

Temperature ranges for custom activities can be set using this slider
European Tourism: Case Studies

Thomas Cook
Austrian National Tourist Office
Ljubljana Tourism
ATC Mountain Tourism Consultants
Greentour
Croatian Camping Union
Lake District National Park Authority
Centro Maree
Swiss Association of Cable Cars
Climate Change and Energy Agency of the Government of Andorra
They wanted to gain better understanding of the climate data in order to:

- Future proof long term investment decisions, especially when building and renovating hotels.
- Prioritise adaptation to climate change.
- Review the length of the holiday seasons to spread the impact of tourism on destinations.
- Reduce uncertainty and risk in investment decisions.
Climate risks screening of its infrastructures

- reduce the risk of building hotels in areas that are likely to be affected by climate change impacts, such as coastal flooding and increased forest fire incidence (FWI).

- Reduce the future need for retro-fitting by anticipating future heating and cooling requirements, reducing water dependency, etc.
Managing the coming season and long-term tourism flows

• Summer 2018, probably 2019: Drop in booking. Due to hot conditions in UK, Germany and northern Europe in general, clients took holidays in their home country.

• Anticipate the following season with the help of seasonal forecast to inform the coming conditions, where the forecast is informative and available.

• Opportunities for expanding the holiday season of specific destinations or develop emerging destinations due to their improving climate (Projections).
Thomas Cook: Impact

“C3S has provided access to credible data and predictions which will help inform investment decisions, lasting 40 years or more.”

**Was the bankruptcy partly climate driven?**

- an increasing need to respond to investor demands about climate change adaptation strategies “Tackling the problem of climate adaptation will improve the company’s investor relations”
- Shift of the climate suitability of tourist destinations and drop in bookings (2 consecutive summers)
PROSNOW: provision of a prediction system allowing for management and optimization of snow in Alpine ski resorts

www.prosnow.org
PROSNOW: the consortium

Scientific partners

Private companies

Ski-resorts

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 730203
PROSNOW: concept and challenges

- Snow management is critical in a context of significant variability and long term decline of snow precipitation.

How to better anticipate at the scale of the season?
The predictability of snow conditions depends:

- **on meteorological predictability** (need for downscaled meteorological forecasts, from daily to seasonal),
- **on current snow conditions**, and
- **on actual snow management practices**.
PROSNOW: Results from snowpack modelling

TIME SCALE:
Simulations driven by a combination of different forecast products

Several possible representations of uncertainty

Snowpack model initialized with an observed snow height value

Snowpack model driven by a numerical weather prediction

Target date = 22/01/2018

Spread between min and max

Spread between q50 and q90

Date of initializations
PROSNOW: Translation into an intuitive interface
PROSNOW: An extended range of use

• Initial objective of use:
  – **Anticipate** on snow conditions and reduce the use of resources (water, energy)
  – **Avoid** over- or under- snow production
  – **Optimise** the snow quality

• Complementary use:
  – **External information** for customers
  – **Internal communication** between technicians
  – Better communication with local actors about **environmental** challenges
MORE QUESTIONS?

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• Thank you.