

Collaborative Project



CLIM-RUN

Climate Local Information in the Mediterranean
region Responding to User Needs



WP5 – Tourism Case Studies
Task 5.1 Organisation of regular meetings and surveys

Case study: Savoie

Report on surveys and first workshop

Project No. 265192– CLIM-RUN

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Underpinning work to enable provision of local scale
climate information (annual to decadal timescales)

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Table of contents

1. Executive summary	3
2. Involving actors: method	4
2.1. Identifying stakeholders.....	4
2.2. Field surveys	4
2.2.1. General approach	4
2.2.2. Actors involved.....	5
2.2.3. Method and materials.....	6
2.2.4. Key findings	7
2.2.5. Limitations.....	7
2.3. The workshop.....	8
2.3.1. Aims and approach	8
2.3.2. Actors involved.....	9
2.3.3. Method	9
2.3.4. Key findings	10
2.3.5. Limitations.....	10
3. Main results and findings	11
3.1. Identifying key issues	11
3.1.1. Changes and impacts observed.....	11
3.1.2. Future climate conditions: issues and perceptions.....	14
3.2. Current access to climate information	14
3.3. Actor involvement.....	15
3.3.1. An interest in climate discouraging actor involvement.....	16
3.3.2. Using knowledge issues to encourage involvement.....	18
3.3.3. Stakeholder interest in the project.....	20
3.4. Stakeholder expectations for the past and present climate situation.....	20
3.4.1. Using the past climate situation as a starting point for dialogue.....	21
3.4.2. Prioritising the needs expressed by actors.....	23
3.5. Stakeholder expectations for the future climate situation	24
3.5.1. Increasingly precise needs.....	24
3.5.2. Prioritising the needs expressed by actors.....	27
3.6. Communication: improving specialist/non-specialist dialogue	30
3.6.1. Encouraging immediate understanding.....	30
3.6.2. Uncertainty, a key issue for information and communication	31
3.7. Access to information: improving transmission.....	32
4. Next steps	34
4.1. Dialogue and working with actors.....	34
4.2. Sharing information with CLIM-RUN partners	35
ANNEXES	36

1. Executive summary

The aim of CLIM-RUN is to develop and test a protocol that provides and transfers relevant and usable climate information and data to stakeholders at different levels and in different sectors of society (policymakers, investors, etc.).

The programme's Work Package 5 (WP5) involves carrying out case studies in the tourism sector. These case studies will be used to develop climate services and identify their future uses later in the project. In other words, these case studies will be "testing grounds" to evaluate the protocol and, in particular, the strengths of the connections between climate experts and actors in the sector. Actors will be involved early in the process because the consultation phase, which will incorporate interviews and a workshop, is essential to ensuring the rest of the project runs smoothly and successfully implementing a "bottom-up" approach.

The aim of this phase is to define the framework for each case study so as to better meet users' needs in terms of supplying and transmitting climate information. In addition, the relevance of this information must be evaluated in line with other parameters and important factors, such as regulations, regional contexts and social, economic and political drivers. This will ensure the protocol developed can be used in similar situations.

Because of its important tourism sector and vulnerability to climate change, the French alpine region of Savoie-Mont-Blanc has been selected as a particularly relevant case study for summer mountain activities.

The aim of this document is to present the work completed during the initial consultation phase. This includes interviews carried out in the region in summer 2011 and the first workshop, which took place on 19 September 2011 in Montmélian (Savoie). The document also describes the methodology used by the CLIM-RUN team, from the interview phase to the workshop. Finally, it sets out and summarises the main findings from consultation with actors, in particular the issues and expectations relating to climate information.

2. Involving actors: method

2.1. Identifying stakeholders

Prior to the consultation phase, the most relevant stakeholders needed to be identified and sorted.

The aim was to target the most influential and representative actors and/or groups of actors in the Savoie-Mont Blanc tourism sector, whatever their scale of activity or profile (public or private, for instance). However, the programme also focused on identifying “resource persons” and “key operators”, who are in a good position to liaise with others in their area of activity, or act as an interface between several different areas. In other words, they are important links in transmitting and spreading information.

The identification phase had two main goals:

- Identifying key actors in the region's tourism industry, using a classic institutional analysis.
- Carrying out informal identification procedures using the regional expertise of the local research team, which included Philippe Bourdeau, researcher at the *Institut de Géographie Alpine* (Institute of Alpine Geography).

This second step made it easier to encourage actors' involvement in the project.

2.2. Field surveys

2.2.1. General approach

The tourism case study protocol defined as part of CLIM-RUN's work packages aims at encouraging maximum actor involvement in the project right from the launch phase.

In-person interviews make it possible for direct dialogue with stakeholders to take place. They therefore appear to be the most appropriate method in a “bottom-up” approach, as they eliminate the distance that can be created by sending written questionnaires by post.

Generally speaking, the field survey phase took place as follows:

- Making appointments:

- Initial email contact, including a brief explanation of the process and request for an appointment (with a recommendation letter from CLIM-RUN/TEC attached)
- Follow up email, with more detailed information on the project and its relevance for the person if required.
- If the person did not reply, the email was followed up with a telephone call explaining the procedure.
- Meetings:
 - Interviewers travelled to places convenient for the interviewees whenever this was possible (for example, their office, a cafe or another location).
 - Dates were fixed beforehand: they varied depending on the region.
- Follow-up:
 - During interviews, interviewees were told a workshop would take place.
 - After the interviews were completed, invitations to the workshop were sent out. Follow-up emails were sent if interviewees did not reply.

2.2.2. Actors involved

After the initial meeting, around 40 people were invited to take part in the next stage of the project.

We met 30 of these people at the 25 interviews targeting the different groups of actors identified above. As these figures suggest, some interviewees chose to attend the interviews in pairs, in order to compare the views of different departments affected by climate issues.

We were unable to contact some of the Savoie tourism industry's key actors during this phase. Examples included associations bringing together local councillors (like the *Association Nationale des Elus de Montagne* – National Association of Councillors in Mountain Regions – and the *Association Nationale des Maires des Stations de Montagne* – National Association of Mayors of Ski Stations). However, it will be possible to involve these organisations at a later date, for example when networking climate services on the regional and Mediterranean levels.

Each actor is free to make contributions to the list of people involved (annex 2). By identifying key people that could be interested in the CLIM-RUN project, they will add to the “snowball effect.”

2.2.3. Method and materials

As set out in the protocol, the interviews were carried out on the basis of the questionnaire developed as part of Work Package 4.

After discussion and reflection with the local research team, interviewers decided to adapt and rework the questionnaire structure in order to obtain a semi-structured interview. This more open style of interview was better suited to the people interviewed.

These interviews were conducted and analysed in a “comprehensive” manner similar to that used by French sociologist Jean-Claude Kaufmann.¹ However, the information collected is not suitable for statistical analysis.

The interviews usually began with general questions, before moving onto more precise questions dealing with technical details and/or the climate. Some questions could be used to obtain clearer information or focus the interviewee on the main issue at hand when required.

Interviews can sometimes be bogged down by too many technical questions (a single technical question can suffice). This hinders dialogue and interrupts the flow of the interview. As a result, the actor's interest/involvement in the process decreases.

It is important to avoid falling into this trap with interviewees who lack expert knowledge of climatology, or those not used to dealing with climate data. This can be done by finding a good balance of information, or “translating” or even explaining some technical questions. However, care must be taken to not lose sight of the information being collected.

To get around this issue, interviewers developed an interview scenario adapted to the different kinds of actors they met with. For example, the following question was put to institutional actors, technicians and consultants:

“How do you integrate / take into account questions on the climate (decision-making) in your organisation?”

When talking to outdoor activity professionals and operators in the field, however, the question was replaced by:

“What adaptation or mitigation solution(s) have you tested or developed in this field?”

¹ J-C. Kaufmann , 1996, *L'entretien compréhensif*, Paris, Nathan

Background information on each of the interview's sections or themes was given to the person being interviewed (including information on "climate services" and "climate information", for example). This information was adapted to the CLIM-RUN context.

For questions on "technical" climate information needs, interviewers used a card listing different climate documents. This made it possible to present some examples of existing products and models outputs. It also was a prompt that interviewees could use to express their needs/opinions in terms of climate information.

- o Seasonal temperature projections, 2070-2099, (Météo-France, IMFREX).
- o Winter rainfall (compared to the 1961-1990 base period average) in alpine sectors (including the Northern/Southern Alps and Central Alps) (Météo-France).
- o Percentage drop in snow depth according to climate evolution scenarios (Météo-France).
- o Good ski conditions in the Swiss Alps: current and future climate conditions (Elsasser, Messerli 2001).

2.2.4. Key findings

The positive points of the initial consultation phase included the interest shown in the project by different interviewees, regardless of their position. Overall, they reacted well to the process.

Another positive point was the fact that the interviews were relatively open, and sometimes came close to being discussions. This meant interviewers were able to avoid the stereotypes associated with academic research, although this did mean interviews took longer to complete and assess than normal questionnaires.

The interviews also helped raise awareness of climate information and climate service issues relevant to the actors' different professions prior to the workshop. This allowed us to get ahead of schedule in some areas.

2.2.5. Limitations

Despite regular follow-up emails or telephone calls, it was sometimes difficult to get actors involved. For many of them, summer was not the best time to carry out this kind of survey, because they were less available (in addition, the interview was relatively "long," taking over an hour to complete).

Availability problems stemmed from the fact that interviews were carried out during the peak summer tourist season on the one hand (15 July – 15 August), and many actors were on holiday on the other. They therefore had less time to spare for interviews. Consequently, the CLIM-RUN team was unable to speak with some actors (even by telephone). Examples include ClubMed and Cemagref.

As for the interview procedure, the questionnaire and scenario was adapted to include less questions, more relevant questions and introductions to each key point addressed. Nevertheless, some subjects were slightly too technical, and led to interviewees avoiding or not responding to questions. This may explain some shortcomings in the material collected.

In addition, one of the main difficulties was keeping interviewees focused on the subject (this was not a systematic problem, but did recur relatively frequently). It was sometimes necessary to avoid discussions limited to political considerations (a stand-alone subject) or regional concerns (including relationship problems with other local actors, political loyalty and even different “views on life”). This problem arose because of the method used (interviews). These points are all evidence of the meaning interviewees give to climate change, but they also slow down the process (focused on expressing needs).

2.3. The workshop

2.3.1. Aims and approach

The first actor consultation workshop presenting and comparing supply and demand for climate information by users took place on 19 September 2011, following the field surveys. The workshop was held in Montmélián (at the Parc d'Activités Alpespace-73), a venue that was chosen for its relatively central and accessible location in the Savoie-Mont Blanc region.

The aim was to invite stakeholders to express their needs and expectations as far as climate data and information was concerned. It was also to add to the initial points and variables identified as relevant for the rest of the project. In addition, it was hoped that the workshop would enable the research team to determine to what extent each person would be involved and the best methods that would be used.

All the actors had been informed of the workshop (the date it would be held and why they should attend) during the summer interview. An official invitation was sent out approximately one month beforehand. Requests for confirmation of attendance were made two weeks before the workshop (by email), and again one week before the workshop (by email and telephone).

2.3.2. Actors involved

Around ten people attended the workshop. Participants were fairly representative of the different groups met during the summer.

2.3.3. Method

In order to encourage discussion and debate with participants, the CLIM-RUN team chose to keep presentations and speeches short (20 minutes maximum – see programme in annex 3). Presentations took place in a logical order, and the day was divided into four main blocks. The morning dealt with the past and current climate situation and the afternoon dealt with the future.

The first part of the morning allowed the CLIM-RUN team to establish perimeters for what followed, by presenting an outline of the CLIM-RUN project (issues and interests, climate services, etc.). The presentation by Philippe Bourdeau (from the *Association pour la Recherche, l'Innovation et l'Adaptation en Montagne* – Association for Research, Innovation and Adaptation in Mountain Regions – and the Institute of Alpine Geography) also helped launch discussions and debate by examining tourism in the Savoie region in light of climate and weather issues (seen as a “constraint or a resource?”), the different representations of Savoie's mountains (in advertising, brochures and in tourism offices, etc.), and different reactions to climate conditions (fine/cloudy, favourable/unfavourable, etc.).

The second part of the morning dealt with the past and current climate situation. This made it possible to compare “supply” and “demand” for climate information, through a presentation of existing/available climate data and a brief summary of the needs expressed during fieldwork.

The first part of the afternoon was set aside for presentations focusing on the future climate situation, in particular issues to do with the uncertainty of projections and models, how these models are developed and communications expectations for climate services.

The day ended with the CLIM-RUN team distributing questionnaires on the ways and the extent to which different actors wished to be involved in the project, after identifying common climate service issues and a set of relevant variables for all users (which will be able to be used in Work Packages 2 and 3).

2.3.4. Key findings

Overall, the workshop ran satisfactorily. As hoped, there was ample time for discussion, with and between the actors involved. Interaction between presentations (using “freeze frames” and debate, for example) encouraged participants to explain their doubts, needs and the main issues affecting them, from a “technical” point of view or in light of more general political or media considerations on climate change. This made it possible to explain the first set of variables relevant for all those involved.

The meeting's organisation also encouraged debate. Regular coffee breaks and the buffet lunch served in the meeting room meant the flow of the workshop programme was uninterrupted.

2.3.5. Limitations

Only a relatively small group of those invited to the first workshop actually took part in the event. This was probably partly due to the inappropriate date selected (a Monday in September). Many people were already tied up in meetings because of the end of the summer holidays and other commitments. The Savoie Chamber of Commerce and Industry (CCI) was able to send someone who was both interested in and concerned by the CLIM-RUN project to represent the CCI and the *Cluster des Industries de Montagne* (Cluster of Mountain Industries). However, this was not the case for the region's other important institutions or actors. They were therefore not present at this first stage of dialogue. Some examples include *Savoie-Mont-Blanc Tourisme* (Savoie-Mont-Blanc Tourism), the *Mission d'Ingénierie Touristique Rhône-Alpes* (Rhône-Alpes Tourism Engineering Mission) and the *Parc National de la Vanoise* (Vanoise National Park).

For future workshops, care must be taken to select appropriate dates that suit different actors.

The quality of discussion and dialogue at this day-long event seems to indicate that the ideal number of participants is between 10 to 15. Too many participants (20 or more) could hinder dialogue (or require a different kind of organisation – for example, the creation of sub-groups of 4 to 5 people sharing “climate interests”).

3. Main results and findings

3.1. Identifying key issues

3.1.1. Changes and impacts observed

During interviews, actors underlined a number of key issues. These issues were related to climate evolutions they had felt or observed affecting their activities. This part of the report is an overview of *their* vision of Savoie-Mont Blanc's current vulnerability to climate change.

Increasing temperatures: a structural evolution

- A general rise in temperatures

"It feels as if the temperatures at our altitude today are the same as those at Bourg Saint Maurice 15 years ago."

As stated by this actor working in the Tarentaise valley, rising temperatures are an important issue affecting the region. Most actors identified this as a major structural evolution. It is by observing the impact of temperature rises in the field that they became aware of climate change.

Across the entire region, melting and shrinking glaciers can be observed (in the Massif du Mont-Blanc, the Massif de la Vanoise-Gebroulaz, etc.), as can decreasing snow coverage (during the ski season in winter, but also in high mountain areas during summer). These are without doubt the most common effects of global warming observed.

For many actors, climate change will have an obvious impact on the region's attractiveness ("Summer in high mountain areas? It's all grey, it's not ideal." "With the melting that has taken place over these last few years, you can only see black snow in some places."). However, the natural hazards climate change causes will have an even greater impact on the mountain and tourism / sporting activities.

Sports practised in high mountain areas (such as mountaineering) are vulnerable to these changes. When this is combined with the current socio-economic (and cultural) situation, it appears to contribute to the drop in interest currently observed in clients.

The increasing temperatures, which cause ice to melt (both permafrost and glaciers), combine with a drop in snow coverage to modify glacier trails and paths. This makes them more difficult to access (from two points of view – in terms of accessing the site itself, and in terms of the expertise required). In turn, this creates safety issues (due to the increased

risk of falling blocks of ice or seracs), as underlined by this professional: "Generally, when glaciers contract they reveal new obstacles, obstacles that are more difficult than the rest of the trail. So either we change the trail, or we go there with experienced people we know personally."

The increase in natural hazards affecting mountain areas – avalanches, falling seracs and water pockets that form in glaciers and threaten to burst – is not only an issue for outdoor activities. Destinations themselves are also at risk of the hazards created by changing temperatures. One example is Chamonix valley, which is surrounded by active avalanche chutes.

- *Pre-summer season*

The second key point raised by participants was to do with changing temperatures in the spring shoulder season. They observed that temperatures were increasing in the months of May and June, between the end of spring and the beginning of summer. Here are some of their remarks:

- "Springtime is warmer."
- "There's no longer a transition between winter and summer."
- "Now the seasons run into each other, there's only a bit of a break in autumn."
- "Today, the summer season actually starts in June, not in July."

These actors observed that the transition period between winter and summer appeared warmer for two reasons. First, many participants noted that the start of the summer season seemed to be arriving earlier. Secondly, some outdoor activities have been moved to the spring shoulder season, when weather conditions are better (with higher temperatures and more sunshine than before): "There's a tendency to move some practices and climbs we used to do in summer to spring."

In some situations, operators may find it difficult to adapt to the increasing number of visitors as the pre-summer shoulder season evolves. For camping grounds and mountain huts, for example, this poses logistical issues: "Sometimes, we could have stopped our winter activities sooner to prepare for the summer season and open earlier."

Changing weather conditions: a structural issue?

As mountain areas are destinations where outdoor activities take place, all actors agree that they are dependent on and vulnerable to changing weather conditions. However, weather conditions seem to be becoming a structural, rather than a seasonal, issue. While a few participants considered that weather conditions in Savoie (in and between seasons) were due to site-specific factors and the region's topography, most felt that they were

increasingly extreme / striking. It is as if people were “losing their bearings” in terms of stable seasonal and climate indicators.

- “The situation is increasingly variable, there are major differences during the season, from one month to the next. For example, July might be really warm, and August cold.”
- “In summer, there are fewer fine spells than before, fewer periods where the sky is blue for a few days in a row...”
- “We have real jumps in temperatures, the weather is all over the place.”
- “Things change a lot from one year to the next, it's as if the changes were speeding up, becoming more pronounced. The last few years have been characterised by a big range in temperatures.”
- “Temperatures are increasingly like yoyos, there are no seasons anymore!”

Participants therefore identified changing weather conditions, in particular evolving temperatures and alternating sunny / rainy periods, as a structural (rather than seasonal) climate factor affecting the destination.

These conditions have an obvious impact on tourist numbers and activities. Operators will become more dependent on the adaptability and flexibility of clients. This may be amplified as demand for short stays increases.

In addition, participants – especially those involved in outdoor activities – mentioned the resurgence of the Foehn effect, unsettled weather, and south/south-east wind flows as the most significant climate evolutions for the region. The increase in this kind of unsettled weather amplifies spatial variability (differentiation) of rainfall distribution.

In turn, this creates major disparities in snowfall from one mountain slope or (internal) massif to the next. Consequently, tourists choose competing mountain destinations (on the micro scale, sectors internal to Savoie-Mont Blanc or in the case of cross-border areas – Mont Blanc).

Extreme weather events

Despite being more random, extreme weather events also affect the collective “climate memory”. They are often used as “indicators” or “benchmarks” when discussing climate evolutions. This is especially the case for recent weather events.

In addition, particularly warm / dry winters (as experienced in the 2006-7 season) or summer heat waves (as experienced in 2003) add to the impression that the climate is changing. In the examples mentioned above, they contributed to the impression that temperatures were rising. They can either raise awareness of the problem, or be used in the opposite way as part of rhetoric negating or avoiding questions on future climate

conditions. ("Anyway, that's nothing new, we've had cold winters and hot summers like that before... So if that's what you call climate change...")

In any case, the "extreme" nature of these events means they have a tangible effect on tourism activities, although it is not always possible to put a precise figure on this impact (especially for summer outdoor activities). In the summer of 2003, tourist numbers in Savoie-Mont Blanc were up, especially for water activities and activities in mid-mountain areas.

However, some practices did not benefit from this event, but suffered instead. Examples include mountaineering (see above and also the quote from this actor: "2003 was a disaster, one we've never recovered from, in terms of both snowfall and clientele.") and rock climbing in mid-mountain areas ("For a lot of climbing sites, the heat wave in 2003 had an impact on vegetation, falling rocks and stances that were no longer usable because of poor rock quality or the loss of natural anchors."). Meanwhile white water sports, which benefited from an increase in demand during the heat wave, suffered from low water levels due to the drought ("the water level was very low, but that led mainly to problems with water quality.")

3.1.2. **Future climate conditions: issues and perceptions**

Overall, the actors have a clear vision of the current climate evolutions and issues affecting tourist activities in the Savoie-Mont-Blanc destination. They are aware of its vulnerability (its "real" vulnerability as opposed to its "potential" vulnerability).

However, it is possible to observe that climate change (or the idea of "future climate conditions") is generally seen in a negative light. It is considered more of a threat than an opportunity. The main climate issues raised were:

- **Increasing temperatures** (a structural trend).
- **Variable weather conditions during and between seasons** and years (in terms of temperature ranges, alternating fine / rainy spells, etc.).
- **Extreme weather events** (heat waves, droughts and heavy rain).
=> These were tied in with the underlying issues of **water** and **natural hazards** affecting the future climate.

3.2. **Current access to climate information**

This part of the report will discuss the ways in which the actors we met get information on the climate. The aim is to identify the main kinds of approaches adopted, and the main kinds of climate information used.

The decision to separate past / current climate conditions and future climate conditions was the result of observations made during interviews. Generally, participants used

different methods to find out about past climate conditions compared to future climate conditions.

Finding out about past and current climate conditions

The ways in which actors currently access climate information vary greatly from one person to the next. This is in terms of the approach used, and the kinds of information sought (political, technical, etc.). There is no real homogeneity or clear structure in the approaches adopted, which are mostly dominated by in-house or personal monitoring of the general situation, despite the use of traditional information circuits in the tourism sector.

Information on the past / current climate situation appears to be dominated by subjective views and information (for instance, perceptions or collective memory), despite the scientific data available. The most sought-after information on future climate conditions is political information or summaries of scientific research.

Consequently, questions on the climate (especially to do with the future) are generally integrated into a system of informal practices and habits. Searching for information is often one-off and not systematic, except for institutions like the *Rhône Alpes Comité régional du tourisme* (Regional Tourism Committee) and the *Savoie-Mont-Blanc Comité départemental du tourisme* (Territorial Tourism Committee).

While many actors underline that "data are not lacking", this situation can be explained by the following points:

- **The distance separating producers and users:**
"There is a large gap between researchers, and decision-makers or actors in the field."
- **A summer tourism sector that is less structured or not at all structured in this respect:**
"The problem is that summer tourism operators aren't as united or as organised as winter operators."
- **Climate information is not adapted to the problems and issues facing those in the field. It cannot be used "as is".**
"There is absolutely no link with impacts. We can't easily put figures on how the climate will affect summer tourism activities (tourism numbers etc.)."

3.3. Actor involvement

The decision to involve stakeholders in the CLIM-RUN project is closely linked to actors' interest in being part of a more structured approach to climate information. Following different discussions (including at the interviews and workshop), a certain number of "sticking points" were identified. These points, which could hinder involvement in the process, are directly linked to perceptions of climate change.

Nevertheless, two key issues for tourism industries and regions in Savoie-Mont-Blanc were underlined. These could be used as a means of ensuring the project proceeds to the next step.

3.3.1. An interest in climate discouraging actor involvement

Three key points were raised to explain why climate conditions (especially future climate conditions) were not taken into account in decision-making. They therefore give an initial idea of the needs to be satisfied and gaps to be filled. These points were: the climate's importance in the tourism sector's socio-economic context; communication on climate change; and the quality of existing / available climate information.

The socio-economic context of tourism in Savoie

- *The climate: one of several contextual factors*

Despite recognising their dependency on climate and weather factors and determinants, most actors see these factors as secondary given the other elements necessary for a healthy tourism industry.

In addition, they cite issues caused by the socio-economic context (such as crises, lower purchasing power and more global factors like the cost of transport) as key determinants in tourist numbers (sometimes even more important than the "weather" factor). In line with this view, the summer opening policy adopted by some stations favours economic and financial factors over weather factors to attract tourists. Discounted rental apartments during off-peak periods (such as at the end of the summer season) attract more clients in spite of possibly unfavourable weather conditions.

From a more structural point of view, actors and operators are likely to be more interested in changing holiday dates or the continuation of school trips, which depend on political decisions on the national level, than climate factors.

Similarly, socio-cultural evolutions (changes in demand, market profiles and niche markets, for instance) are essential factors when it comes to making predictions about the activity or sector.

- *Differences in scale and timeframes*

For many actors, future climate conditions and climate change are distant and abstract issues, which have little to do with the immediate concerns of tourist activities. In addition, there is a major gap between climate phenomena that are perceived as global and

long-term (and therefore distant to local realities), and the reasoning and functioning of the sector in the short or very short term.

This observation reflects to a certain extent the different – or even opposite – approaches used to deal with operational interests as opposed to prospective issues.

Different actors and decision makers are concerned with different timeframes ("councillors are interested in their mandate, 6 years, no more; the others think 20 years is too long, except for some investors or the *établissement des Délégations de Service Public*." (delegation of public service))

- *Questioning development models*

A final factor for many actors is the risk that climate change will threaten the Savoie region's tourism development model. This is one of the most influential factors because, paradoxically, it leads to climate issues not being integrated into decision-making processes:

- "Nothing should hinder the all-powerful tourism industry."
- "Overall, the mountain community is reluctant, or even refuses, to accept climate information."

Sometimes, the climate issue – negatively viewed – is glossed over, and this is reinforced by the adaptation measures that have been developed to date.

In other words, the efficiency of solutions implemented to adapt to and become independent of unfavourable climate conditions (especially for the winter season – one example is artificial snow) means that actors do not seek information on the climate or make climate projections. This issue was raised by some of the people met: "artificial snow: it's a salvage operation, it saves the season. But it backfires because people forget to think about climate change, and they forget about the summer season."

Current climate information: quality and communication

- *The media filter and the "doom and gloom" approach*

For many tourism operators, especially those in the field, large-scale communications and media networks are major barriers to finding out more about future climate conditions.

Too much coverage of the "catastrophic" climate situation only reinforces actors' perception of future climate conditions as an abstract and distant issue, as mentioned above. Underlining the negative aspects does not make people want to find out more: "Sure, I'd like to find out more about climate change, but if it's only to hear that we're on the verge of disaster, I'd rather not know! Anyway, I wouldn't say anything, otherwise

everyone would shut up shop!" The media filter is therefore one of the main reasons for the lack of interest in climate change. It also shows the interest in following the CLIM-RUN project.

- *Scientific controversy and uncertainty*

The omnipresence of major media and communications networks has the effect of discrediting work carried out by climate change researchers and specialists. In particular, the international and national media's focus on methodological debates that are usually internal to scientific circles has had a negative effect in terms of the perceived quality of information on future climate conditions produced by research institutions. One example is the controversy linked to the degrees of uncertainty in research work. This adds to the doubts created, reinforcing the idea of abstraction for most non-specialists, including the region's tourist operators. "We're lost, scientists can't even agree, thinking about future climate conditions in these conditions is difficult."

Knowledge of climatology

Finally, there is a strong correlation between actors' trust in future climate projections and the reliability of seasonal weather forecasts. If weather forecasts are considered unreliable, this damages the credibility of long-term projections, despite the fact that meteorology is a different scientific field. As stated by this operator working in high mountain areas, "Seasonal forecasts are all over the place, we never get the weather they predict, so I have trouble believing in the 'reliability' of projections ten to fifteen years in the future."

The real issue here is dialogue between scientists and users. On the one hand, it is a question of semantics, because users confuse meteorology and climatology. On the other, users are unaware of the advances made in climatology, and the field's ability to produce regionalised information and specific seasonal projections.

In particular, participants often put forward the region's unique characteristics when "doubting" the ability of climatologists to take into account or reconstruct its "natural climate variability" and the effects of different sites or mountain topographies.

3.3.2. Using knowledge issues to encourage involvement

Despite participants' interest in climate information being negatively affected by their lack of knowledge and trust in climatology, this information is essential for all of them.

The three ways in which stakeholder involvement could be encouraged therefore include: giving users an idea of the region's future climate situation; improving knowledge and culture within specific tourist regions; and establishing a reliable basis of scientific knowledge.

Anticipating and supporting the evolution of tourism regions

The first interest raised by different protagonists was the possibility of anticipating the region's future climate situation, especially with respect to the climate issues identified above (see part 3.1).

As tourists move towards shorter stays closer to home, destinations could become more vulnerable. Better climate information on the future climate conditions in destinations (for example weather variability, see above) could be paired with information on tourists' climate expectations, thus enabling these destinations to minimise their vulnerability. Similarly, efforts could be made to better support destinations on a micro-scale, by helping them to adapt their offers to future climate conditions.

Destinations and activities as “witnesses” of climate change

Reflecting the move towards sustainable development, eco-tourism destinations are emerging. In the Savoie-Mont-Blanc region, Chamonix valley aims to become a forerunner in this field, by developing an ambitious *Plan climat-énergie territorial* (regional climate and energy plan). As part of this plan, which involves implementing adaptation strategies, it has been suggested that an “open-air museum” should be created to promote the valley's assets, natural resources and landscapes.

With a strong focus on the issue of climate change, as observed through the past/current climate situation and increased awareness of future evolutions, this kind of approach can encourage many of the region's different actors to become interested in climate information.

More specifically, outdoor professionals (especially guides in high altitude areas and activity coordinators) could become “witnesses” of climate change, given their first-hand experience of evolutions in the region. Some have already observed that their clients' questions on climate change are becoming increasingly frequent and specific. In this situation, it would be beneficial to improve or develop a “scientific” culture and basic knowledge on climate change, in order to combine the observations of those in the field with scientific information. This was, in any case, a suggestion made by some of the actors concerned.

Political and professional outreach activities

Tourism operators involved in outreach or lobbying activities are increasingly interested in obtaining access to climate information. This is without a doubt one of the main reasons for actors to get involved in the project.

The crucial issue here is ensuring that the non-specialists who interact with political decision-makers and lawmakers have access to basic and reliable scientific information.

The aim is to foster a better understanding of climate evolutions, and then to provide access to information (technical or other) that makes it possible for dialogue on an equal footing to take place with investors and institutions. For many professional organisations (not only those involved in outdoor activities), this means “seeing more clearly” and having more say in strategic planning. This can also be relevant within organisations. Integrating the climate into training modules for field professionals, for instance, could be one way of creating a “climate culture” as mentioned briefly above.

3.3.3. Stakeholder interest in the project

At this stage, it is possible to draw up a list of stakeholders and their interest in the project as determined during interviews. The list features the names of the organisations represented. When the name of the organisation is in *italics*, this means that the discussion was too short to go into details (because the person was not available, etc.)

Very interested +++	interested ++	A bit interested +	Not interested -
MITRA	PN Vanoise	CDT73	ASADAC73
SMBT	PNR Bauges	Chamoniarde- PoleMontagneRisk	<i>Camping Sierroz/FRHPA</i>
MDP-ObsCC	CC Vallée Chamonix	Compagnie des Guides	Orexios
CCI73	OT Vallée Chamonix	DSF	<i>Refuge Fournache</i>
Hémisph'Air	SNGM	<i>Refuge Plan Sec</i>	Mountain Riders
Camping Lanchettes (FRHPA)	SNAM	Mountain Wilderness	
CIPRA France	SNAPEC		
	Centre Nautique Bourget du Lac		

3.4. Stakeholder expectations for the past and present climate situation

Following this initial consultation phase, users' needs and expectations regarding climate information were relatively clear.

Given the issues raised above, it is important that users have access to past data, and, whenever this is possible, related information on future climate conditions. The second key step for improving dialogue between scientists and non-specialists is improving communication, in terms of both understanding and the credibility of information produced (uncertainty and methods). Finally, information must be made accessible by ensuring it circulates between different spheres.

3.4.1. Using the past climate situation as a starting point for dialogue

"Before projecting ourselves into the future, we have to know where we stand."

The first key point raised by all actors was the need for information on the past and current climate situation. They considered this was a fundamental requirement, and almost more important than data on future evolutions. This is the result of the need for a clear and objective vision of real climate evolutions.

For many actors, proverbs, collective memory and personal experiences play a key role in how they perceive the climate and its evolutions. The aim here is to compare this information, which is subjective and difficult to verify, with scientific data, making it more "objective" (in situations where personal experience and data measurements actually correlate). What is at stake, when confronting the layperson's knowledge and scientific knowledge, is the credibility of science, from the meteorological and climatological points of view ("I don't need weather forecasts, I look at the mountain and I can tell you whether and when it's going to rain").

In practical terms, this would allow many actors, whose presence in the region is relatively recent, to better understand the climate context in which they operate and upon which their activities and offers depend. This is especially true for tourist activities. As one participant put it, "I'm pretty new to the region, I'm not well placed to say whether it has changed and how; I think it would be interesting to know, for that matter."

In a similar vein, many participants would like information on the past / current climate situation in order to compare it with their observations in the field, which in this situation are seen as "real", material and definable in space (retreating glaciers being the most obvious example). The aim is to improve knowledge and understanding of the climate and related phenomena by linking seemingly abstract information and examples demonstrating these trends. The use of images and real examples is essential when communicating and raising awareness about the climate. Relevant, targeted and related information can help learning and be used as a basis for discussion on climate change.

This is the main reason that information on past climate conditions seems relevant for actors. By using the different methods identified above, they can develop a basic culture and understanding of the past and current climate situation. They are then better equipped to deal with the future climate situation and climate change, which they seem to see as more abstract and technical.

In this situation, the expectations raised during interviews include:

- Access to a “climate history”: basic information (trends and variability) and chronological series adapted to the region.
- Emphasis on extreme weather events, in particular heat waves and droughts, but also storms and periods of high rainfall.
- A focus on the long-term, with minimum time horizons of around -40 to -50 years.

The table below sums up the main needs identified during interviews:

	EXPECTATION	RELATED VARIABLE	Time HORIZON	Spatial / Time RESOLUTION	
A	Particularly hot or cold summers	Temperature	-40/50 years	To be determined	Time: seasonal averages (extremes + average for comparison)
B	Particularly “bad” summers: overcast and rainy	Rainfall Sunshine			As above
C	Particularly warm and dry winters	Temperature Rainfall (Snow cover)		(winter+shoulder season, spring)	
D	History-frequency of extreme weather events (summer)	Drought (1) Heat wave (2) Heavy rainfall (3) Storms (4)		3 & 4: regionalised (to be determined)	
E	Understanding natural climate variability	As above + glacial cycle	-100 years... and +	Annual / pluriannual/ decadal variability	

3.4.2. Prioritising the needs expressed by actors

The different needs expressed by actors were discussed and developed during the workshop. An attempt was made to prioritise these needs in order to come up with more sophisticated products able to be used by those involved in summer tourism activities on an operational basis. This is because the aim is not just to improve knowledge of climate evolutions, but also to raise awareness of climate change, help actors understand the importance of the climate in their activities and help them adapt to the changes observed.

Product 1 – “ECONOMIC ASSESSMENT OF THE TOURISM SECTOR”: Draw up seasonal assessments (each trimester) comparing economic activity and the climate.

In line with the “seasonal assessment culture” (Philippe Bourdeau) underlying much of the Savoie tourism industry, the aim is to combine seasonal economic assessments and seasonal climate assessments, using data produced by Météo-France. Today, the climate change observatory at the Mission Développement Prospective 73 (a regional development agency) distributes these assessments. They could be improved to take into account users' expectations in terms of variables (rainfall / temperatures / extreme weather events) and communication and information (language used / layout of climate information). At the same time, the economic assessment could be reworked to show the direct impacts of climate observations on economic activity (customer behaviour, steady activities, neglected activities / climate context). This would make it possible to create a real “climate culture”, and progressively identify actions enabling tourism actors to adapt to climate change.

These seasonal assessments should be developed in close cooperation with the *Observatoire du Changement Climatique* (Climate Change Observatory), represented by Mr Chaix. They should also be developed in conjunction with economic observatories so that documents are accessible and widely broadcast. It would be interesting to create a specific working group made up of actors who already use these assessments to discuss form and content.

Product 2 – “WEATHER REGIMES AND IMPACTS ON THE SAVOIE ALPINE AREA”: Draw parallels between changing weather regimes and the effects observed in the Savoie region, using the valley scale to better understand the local climate.

Climate change could bring about changes in weather regimes (atmospheric flows, etc.)

Today, the field observations made by summer tourism operators include changeable weather, the reappearance of the Foehn effect and other south/south-west perturbations and flows. As we have seen, these perturbations are likely to have a major impact on activities and where they take place.

In this context, it would be interesting to study the changes to weather regimes, in order to better understand the evolutions taking place in the Savoie region. Ideally, it would be good to have a local vision of impacts, which can vary widely from one valley to the next.

Armed with a better knowledge of how changes in weather regimes affect the region, actors can better understand their climate history.

3.5. Stakeholder expectations for the future climate situation

3.5.1. Increasingly precise needs

While there is significant demand for information on the past climate situation, there is also significant demand for information on the future climate situation. These demands are often more specific and exacting, both in terms of precision and reliability.

Unlike information on the past climate situation, future climate information has to be personalised. Criteria include activities, different regions and user type (actor profile) (see above).

In addition to specific expectations, there is also a more general demand for information on how climate conditions are evolving, and the effects of these changes in terms of natural hazards, in connection with the key concerns and issues raised. The main aim is therefore to provide complete information by combining different general parameters with more precise elements adapted to each sector of activity, including water sports, outdoor activities and outdoor accommodation, to name a few.

While for many activities the spatial horizon remains to be defined (as does the resolution), many actors underlined the usefulness of creating different products for high and mid-mountain areas. This would make it possible to adapt information to the different issues faced by these two sectors. For example, some participants would like to see climate projections with a resolution focused on areas above 1,500m in altitude, and a wide spatial horizon extending to other mid-mountain massifs in the region or in France. This would allow them to compare the future of different areas with similar profiles and facing similar issues.

As for the time horizon, there was a clear consensus. Given the actors' different timeframes, the maximum horizon was +20 years, in addition to projections for +5 years wherever this was possible. The aim is to combine long- and medium-term information. Overall, then, expectations favour a decadal approach, with the focus on seasonal trends.

The needs expressed during interviews were as follows:

	EXPECTATION	RELATED VARIABLES	Time HORIZON	Spatial / Time RESOLUTION	
A	Summer season evolution trends	Temperature /Precipitation Sunshine/Cloud cover	+5/ 20 years	Northern French Alps – <i>Altitudinal zone plain/mid-/high-mountain areas</i>	Seasonal/ monthly average
B	Summer season profile(weather variations)	Temperature, sunshine			Shoulder season variability (up to weekly)
C	Shoulder season conditions (early summer season)	Temperature, sunshine			Monthly: May/June (trends & variability)
D	Spring ski conditions	Snow cover, sunshine			Monthly: March /April
E	Autumn shoulder season conditions: an extension of the November school holidays	Temperature, sunshine, precipitation		<i>to be determined</i>	Seasonal-monthly(Sept ember-October-November)

	EXPECTATION	RELATED VARIABLES	Time HORIZON	Spatial / Time RESOLUTION	
F	Frequency and length of droughts	Precipitation (Temperature)	+ 5 / 20 years	<i>To be determined</i>	Yearly / seasonal / monthly frequency
G	Frequency and length of heat waves	Temperature		<i>To be determined</i>	
H	Storm frequency trends	Wind		<i>To be determined</i>	
I	Trends related to the Foehn effect (multiplication?)	Natural disturbance regime, "Number of days with south-westerly wind flows"	+ 5 / 20 years	Northern French Alps / internal massifs	Seasonal/monthly
J	Temperature evolution in high mountain areas (glacier hiking conditions, risks)	Temperature, isotherm evolution (heat waves)	+ 5 / (20 years)	Mont-Blanc area	
K	Management of rises in water levels, floods (+ glacier water pockets)	Precipitation, heavy rain	+ 5 / 20 years	<i>To be determined (+ Mont-Blanc area > 4000m)</i>	
L	Profils des jours / nuits	Temperature, durée ensoleillement	+5/20 years		Daily / day-night alternation

	EXPECTATION	RELATED VARIABLES	Time HORIZON	Spatial / Time RESOLUTION	
M	Evolutions affecting the flow of streams and rivers	<i>Precipitation, droughts & heavy rainfall</i>	+ 5/20 years		
N	Evolutions in water conditions	Lake temperature, wind evolutions	+ 5 / 20 years	Lac Bourget	(weekly variability)
O	Winter snow conditions: "How much less snow is there? When?"	Snow coverage - temperature	+ 5 / 10 years – 20	Station-valley/département	<i>To be determined</i>
P	<i>Tourists' sensitivity to the climate</i>	<i>Tourist climate/comfort index</i>

3.5.2. Prioritising the needs expressed by actors

The different needs expressed by actors were discussed and developed during the workshop. This allowed participants to confirm some observations and identify priorities.

Amongst the observations that were confirmed was the need to develop products with **ten-year time horizons (+5 to +20 years)**, which have more relevance for Savoie tourism actors. Another was the need for provisions on a seasonal scale (the resolution). In addition, it was determined that global and specific parameters should be combined to create a complete picture. Based on the tables above, the priorities to be developed are detailed below. They correspond to key sectors, and the most important and well-identified needs. The hierarchy was determined at the workshop.

Product 1 – “HIGH MOUNTAIN AREAS”: Studying the changing temperatures in high mountain areas and their consequences on the conditions required for different activities (mountain climbing, hiking on glaciers, etc.)

Increasing temperatures are a strong indicator of climate change for the Savoie tourism industry. Consequently, many actors already underlined the importance of having access to projections differentiating between mid- and high-mountain areas.

A product developed specifically for high-mountain areas would allow actors to better plan for the risks threatening some tourism activities, such as mountain climbing, glacier trails and hiking. These risks (including falling blocks of ice and seracs), which have already been observed, could threaten traditional itineraries, increasing the level of difficulty of some trails. By better understanding future conditions, actors could adapt activities accordingly.

The actors interested in this kind of product include outdoor activity operators and professionals, regional authorities and NGOs.

Product 2 – “SPRING CONDITIONS IN MID- AND HIGH-MOUNTAIN AREAS”: Taking opportunities resulting from an earlier start to the summer season

In the future, the spring shoulder season could become more popular than the summer season for some outdoor activities (if conditions are optimal in terms of sunshine, temperatures etc.). Changing practices are already being observed. This can pose problems for tourism operators (in terms of logistics for camping grounds and refuges, for instance), who are not prepared for an early summer season.

Having access to forecasts on spring conditions (temperatures, sunshine and snowfall) would allow institutional actors to develop a strategic vision for these two seasons, and help actors in the field prepare themselves and improve organisation for any significant increases in clients at that period.

Product 3 – “WATER CONDITIONS”: Studying the evolution of water conditions to anticipate their consequences on tourist activities

Savoie's lakes (for example, Lake Bourget) are home to many different water sports, including water skiing, sailing, wake surfing and swimming. Evolutions to the parameters affecting these activities (such as lake water temperatures and winds) are therefore particularly relevant to tourism actors. They could anticipate increasing tourist numbers (as other areas become less attractive from a climate point of view) and develop activities in line with future evolutions.

Product 4 – “THE RISKS POSED BY EXTREMES”: Improving understanding to improve management

For tourism actors, it is important to have access to information on the extreme conditions that could arise as a result of changing temperatures and rainfall (low-flow periods, floods, landslides, drought risks, heat waves, etc.), which affect outdoor activities.

Product 5 – “TOURIST COMFORT INDEX”: Study tourists' changing awareness of the climate

The sea currently holds more attraction than mountain areas during the summer. However, the lack of comfort in certain beach destinations and the potential for improved comfort in mountain zones (including mountain huts and increased temperatures) might influence tourists' decisions on where to spend their holidays. As a result, the creation of a composite index (incorporating temperatures, rainfall, sunshine and wind, for example) could help determine how sensitive tourists are to climate conditions. It would be an asset when choosing where to spend summer holidays.

The needs expressed during interviews were as follows:

Product	Expectation	Interested actors	Variable	Geographic scale	Time horizon
1	Evolution of temperatures in high mountain areas	3,4,5	Temperature: freezing level heights	High mountain areas	5/20 years
2	Spring conditions	<i>All</i>	Temperature Sunshine Snowfall	Massifs / High and mid-mountain areas	5/20 years
3	Evolution of water conditions	1,2,3	Water temperature	Lakes	5/20 years
4	Risks associated with flooding and low-flow periods	2,3,4	Extreme rainfall	Massifs	5/20 years
4	Risks of drought	<i>All</i>	Extreme rainfall Temperatures		5/20 years
4	Risks of heat wave	<i>All</i>	Extreme temperatures		5/20 years
5	Tourists' sensitivity to the climate	1,2,3	Tourist comfort index		

Actors

- 1 Tourism institutions (CRT, CDT, OTSI...)
- 2 Professional organisations and federations
- 3 Outdoor activity operators and professionals
- 4 Regional authorities
- 5 NGOs

3.6. Communication: improving specialist/non-specialist dialogue

3.6.1. Encouraging immediate understanding

The issues of interpreting and formatting data are key in transmitting climate information. The different kinds of data presented in a single document make complex reading for non-specialists. It is therefore important to use a **pedagogical** approach. In addition, many of the actors present suggested that, "sometimes, if the information is technical, a few words resuming the situation are enough." This does not only mean facilitating reading, but also **assisting interpretation**, by translating the main message through graphics, a set of projections, etc. As climate information is only one of several parameters that should be taken into account (see part 3.3.1), the aim is to "not lose time trying to understand and deciphering" the document. It should be possible to quickly interpret and use information. To make this possible, some stakeholders recommend developing tools improving access to climate information (as far as skills are concerned). In other words, it is about encouraging "autonomy" in understanding information.

"We have trouble interpreting data, we're not trained for it, and we always have to ask other people."

"We need a kind of toolbox to help us read and understand data."

The expectation is that **information** be **immediately understandable**, through improved **reading**. In particular, the information's **graphical interface** (overall presentation) needs to be improved, and attention paid to **semiology**. Moreover, interpretation problems were raised at the workshop, where the colour coding in some documents was not immediately decipherable.

However, expectations in this field vary depending on actors' profiles. Those with technical backgrounds are obviously better equipped for dealing with technical data.

In this situation, it is better to build a few **indicators** adapted to the sector (see above) rather than a large quantity of data "that ends up being unusable". These indicators could be used as a shared basis or system of reference (for different industries, activities or all tourism actors).

3.6.2. **Uncertainty, a key issue for information and communication**

Of all the issues and parameters raised, uncertainty was the most important. It is also the issue that led to the most disagreement on how and why to communicate.

From a technical point of view, there are high expectations in terms of **transparency** when:

- **Developing models**, including the need to clarify the processes and progress leading to the product used: the choice of scenarios, working hypotheses, and even the extrapolation method for data (such as the need for a cartography of the different survey stations for x variable, etc.)
- **Quantifying uncertainty** itself (and thereby giving an estimate as to the final product's reliability). This requires statistical information (margins of errors, percentage uncertainty, etc.). In the context of future climate change, it also implies increased communication on the **sources of uncertainty**. This includes natural climate variation and its importance in climate change given anthropic pressures and variations inherent in the modelling tools used.

This expectation arises because actors need precise estimations, especially for exploring markets and investing in the mid- to long-term.

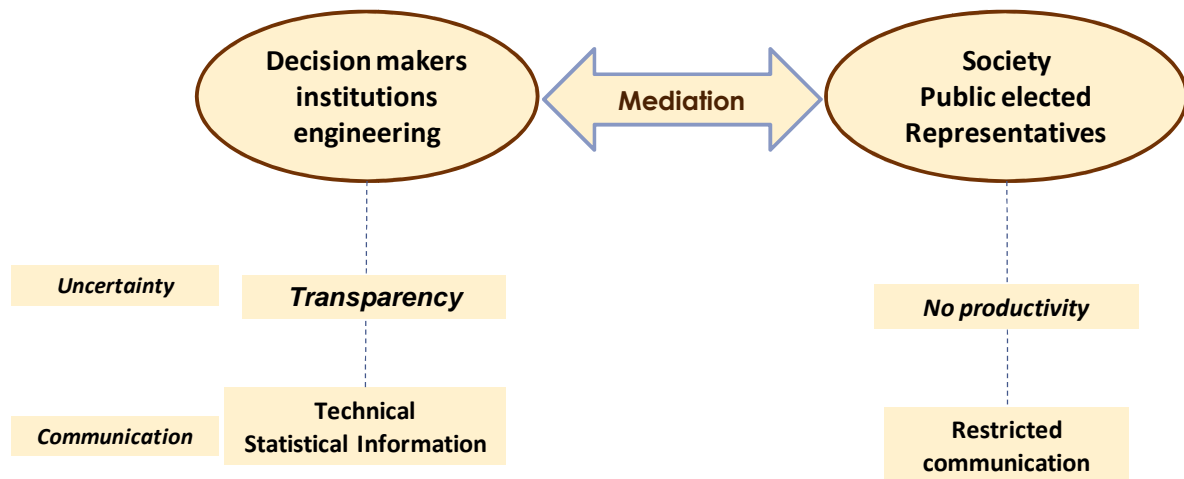
As far as tourism or regional outreach activities are concerned, **expectations** are different, and sometimes **opposing**.

From an "external" point of view, most participants see **communicating** on the uncertainty inherent to all forecast modelling exercises as **counter-productive**. "In people's minds, whenever you talk about uncertainty, they think 'imprecision'." This impression of imprecision held by the general public (and, by extension, potentially all non-specialist users of climate information), plays a key role in **discrediting** science, and climatology in particular.

In contexts where climate change is viewed in a negative light (as stated by the representative of one association, "If raw information on climate change isn't accompanied by solutions, it creates fear and panic in recipients"), extensive broadcasting of information on uncertainty would lessen the interest in climate issues, and could even lead to negation of the problem.

Therefore, when actors choose to encourage or discourage communication on uncertainty issues, this can create a paradoxical situation. This must be taken into account. Organisations can – and must – find a compromise, by using different forms of

communication adapted to actors' profiles. This is also valid for general climate information. The diagram below sums up this information, which will be confirmed below.



3.7. Access to information: improving transmission

Last but not least, many participants expect improved access to information.

This is especially relevant given that actors are generally aware there is considerable data available on the past and current climate situations. The same goes for information on projections for the future (although they may be unaware of the most recent progress). Actors are also aware of the information they lack (like information on **wind**, for example).

"In my files, I have absolutely nothing on the climate. However, I know that information exists! It's like a non-reply that confirms the need".

Generally speaking, stakeholders' concerns are to do with reducing the delays in transmitting information, which can take time to access and use. "We always have to go and look for information, we waste time, and the sources are all over the place." This is one of the disadvantages of using monitoring as the main way of integrating climate information, as mentioned above.

The aim is therefore to give more **direct access** to information, by **minimising the number of intermediaries**, whatever their function. The transmission and circulation of information between producers and users must be as smooth as possible.

This issue was raised many times, right from the introduction to the workshop: "In fact, the main problem is the gap in transmitting information between researchers, decision-

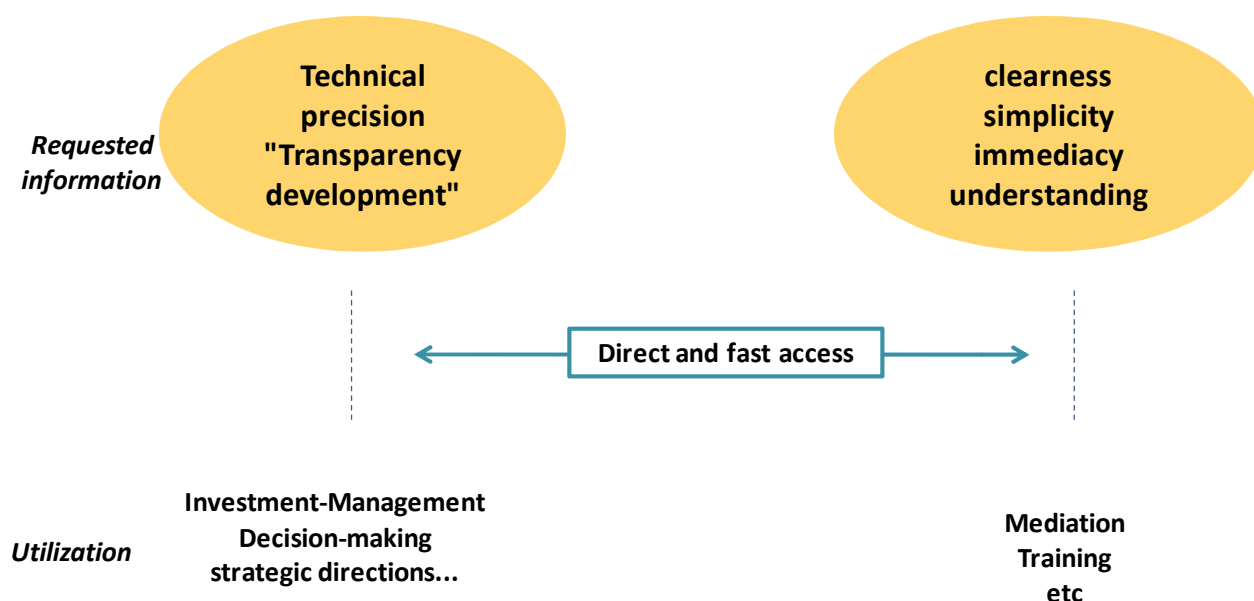
makers, politicians, etc. It's easy to get lost." If data exist, they should be made more accessible or even **transmitted** to tourism operators, "including small operators in the field, who don't usually look for information."

Finally, from a more formal point of view, several mentions were made of local obstacles preventing access to data obtained in the field (in hydrology, for example), which is nevertheless crucial for all actors in the region. These obstacles need to be overcome for better circulation of data between producers/holders/users.

To ensure better **circulation of and access to information**, a web **platform** or interface accessible to all stakeholders should be created. However, consideration should be given to access procedures (whether it should be public, etc.).

In addition, links to existing structures (in particular, the Climate Change Observatory) should be studied.

Summary of climate information needs:



4. Next steps

4.1. Dialogue and working with actors

Following the initial consultation phase, the CLIM-RUN team identified several ways for actors to get involved in the project.

Initially, the CLIM-RUN team will keep all participants informed of the content and outcomes of the first consultation phase. This will be done by:

- Either sending them the present report, along with presentations given at the workshop (especially those who were prevented from attending at the last minute);
- Or sending them a summary or brief overview of the main conclusions (in the form of key points).

The best solution might be to supply more complete information to the participants who were most interested in the project following the interviews (see table part 3.3.3), and summarised information to those who had a lesser interest in the project following the interviews and workshop.

To determine participants' different degrees of interest in the project, a questionnaire was handed out at the end of the Montmélian workshop. They are summarised in the list below. This is indicative only, as there were too few participants to determine the level of involvement desired by all. However, it is one possibility, to be compared with the table in part 3.3.3.

Participants by desired degree of involvement:

- High: CIPRA ; MDP73-ObsCC ; CCI73-cluster CIM ; Hémisph'air
- Medium: SNGM, CC Vallée de Chamonix
- Low: Refuge de Plan Sec (Vanoise)

Finally, one way of bringing together actors for discussions could be to create **focus groups** operating on the edges of the project. These groups could be sector-specific or thematic (focusing on natural hazards or other subjects).

4.2.Sharing information with CLIM-RUN partners

To make it easier for actors and the CLIM-RUN team to get information on the project, an interface could be developed. This could take the form of a platform open to contributions from different groups (along the lines of Wikipedia), which would be integrated into the existing CLIM-RUN website if possible.

The idea is to be able to provide actors with climate data information on the project (information flows from CLIM-RUN => actors), and collect raw data (information flows from actors => CLIM-RUN). In this way, partners in CLIM-RUN's other work packages could consult and provide information to the platform.

Access to the platform could be limited to the Savoie actors who have chosen to get involved in the project (in other words, there would be no public access or broadcasting of the platform).

ANNEXES

1. List of stakeholders

- *Face to face interviews*

Name	Organization	Position	Contact
Hugues Beesau	CRT/MITRA	Director	hugues.beesau@rhonealpes-tourisme.com
Rémy Charmetant	SMB Tourisme (CDT73-74)	Director	remy.charmetant@smbtourisme.com
Claude Ponson	SMB Tourisme/ATD73	Development division (dir.)	Claude.ponson@cdt-savoie.fr
Dominique Giard	Parc National Vanoise	Pôle Découverte&Aménagement	dominique.giard@parcnational-vanoise.fr
Jacques Laurent	PNR Bauges	"4 stations" Project Manager	j.laurent@parcdesbauges.com
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Nicole Tresallet	CCI 73	Tourism referent	n.tresallet@savoie.cci.fr
Grégory Klersch	CCI 73	Project Manager	g.klersch@savoie.cci.fr
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Christian Verrier	ASADAC 73	Winter Resort planning consultant	cverrier@asadac73.com
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Bernard Prudhomme	OT Chamonix Mont-Blanc	Director	bph@chamonix.com
Anne Revilliod	La Chamoniarde	Risk & mountain pole manager	polemontagnerisk@chamoniarde.com
Denis Crabières	SNGM	President	accueil@sngm.com
Eric David	SNAM	Director	chargedemission@lesaem.org
Bertrand Lagrange	SNAPEC	Secretary (ex-president)	bureau@snapec.org
Laurent Reynaud	Domaines Skiabes de France	Director	l.Reynaud@domaines-skiabes.fr
Jean-François Collignon	Compagnie des Guides	Director	jf@chamonix-guides.com
Guy Chaumereuil	Grande Traversée des Alpes	Director	Guy.chaumereuil@grande-traversee-alpes.com
Patrick Anceaux	FRHPA/Camping Lanchettes	Regional representative/director	lanchettes@free.fr
Gérard Caron	FRHPA/Camping Sierroz	Regional representative/director	campingsierroz@aixlesbains.com
Erik Decamp	(Orexios)	Freelance mountain guide	erik.decamp@orexios.net
Claire Bermond	Refuge "Plan Sec"	Keeper	refuge.plansec@orange.fr
Virginie Fressard	Refuge de la Fournache	Keeper	ynomads@aol.com
Pascal Perratone	Centre Nautique du Bourget/AAJS	Director	centre.nautique.aajs@orange.fr
Alain Boulogne	CIPRA France	Director	alain.boulogne@orange.fr
Laurent Burget	Mountain Riders	Director	laurent@mountain-riders.org
Vincent Neirinck	Mountain Wilderness	Project Manager	vn@mountainwilderness.fr
Luigi Gaido	I.R.E.	Tourism & marketing consultant	luigi.gaido@ire-torino.it

- *Stakeholders contacted by email or phone*

Name	Organization	Position	Contact
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* contacté par le biais de la CC Chamonix (Espace Mont Blanc rattaché à la CC)

ANNEX 2. Questionnaire

Trame Générale utilisée pour la plupart des acteurs

Introduction :

- rappel projet Clim-Run, objectifs, démarche
- « informations récoltées ici : cadre privé et restreint du projet ClimRun & équipe de recherche »

1. Votre structure/ organisme / institution

1.1. Pouvez-vous me rappeler brièvement quelques caractéristiques de votre structure ?

1.1.1. Missions/fonctionnement global ?

1.1.1.1. est-elle autonome ou existe-t-il des contraintes/dépendances ? sur quels aspects ?

2. Votre regard sur la variabilité & le changement climatique dans votre activité

2.1. Au travers de vos missions, pouvez-vous me dire quels sont les enjeux ou problèmes environnementaux qui ressortent comme étant les plus préoccupants pour les activités touristiques (en Savoie) ?

2.1.1. (inondations, tempêtes, canicules, eutrophisation, pollution de l'eau, de l'air, érosion, déclin biodiversité...)

2.1.2. Dans cette perspective, avez-vous des exemples d'activités déjà affectées par la variabilité climatique ? De quelle manière ?

2.1.2.1. temporel, géographique...

2.1.3. Susceptibles de l'être dans le futur ?

3. Fonctionnement & mobilisation d'information climatique au sein de votre structure

3.1. Comment sont intégrées/prises en considération les questions liées au climat (prise de décision) au sein de votre organisme ?

3.1.1. programmes, mesures d'adaptation ?

3.1.2. Prenez-vous en compte des avis extérieurs ? Lesquels / dans quelle mesure ?

3.1.2.1. Partenariats éventuels ?

3.1.2.2. Participation à des commissions ?

3.1.2.3. Autres avis ?

3.2. Dans cette perspective, quelle sorte d'information climatique vous semble importante voire incontournable dans votre activité ?

3.2.1. ...que vous mobilisez/utilisez actuellement ?

3.2.1.1.1. données sur la variabilité climatique, passée/future ?

3.2.1.1.2. livres Blancs/ campagnes d'ONG/débats internationaux ?

3.2.1.1.3. Projections socio-économiques, évolutions sociales...

3.2.2. Comment les utilisez- vous et dans quelle mesure ?

3.2.2.1. de manière plutôt *qualitative*, afin d'établir des orientations générales pour vos missions, ou plutôt *quantitativement* (rendement, prédictions ?)

3.2.3. Comment y avez-vous accès ?

3.2.3.1. Si non, pourquoi pas ? quelles sont les éventuelles contraintes ?

3.3. Quels délais prenez-vous en considération (*ou* vous semblent les plus pertinents) : quotidien, saisonnier, court terme ?

3.3.1.1. Les risques de variabilité climatique sur le long terme (d'ici aux 50 prochaines années) sont pour vous un facteur/critère plutôt important ?

3.3.1.2. et au-delà ?

3.4. De manière générale, estimez-vous avoir une bonne connaissance/compréhension des différents modèles climatiques existants ?

3.4.1....des méthodes d'élaboration des prévisions/projections ?

3.5. de l'incertitude liée ?

3.5.1. *Seriez-vous intéressé par mieux connaître ces aspects ?*

3.6. Pensez-vous qu'une meilleure connaissance ou compréhension du phénomène de changement climatique puisse permettre de (mieux) s'adapter ?

3.6.1. Comment/dans quelle mesure par exemple ?

3.6.2. *quelles échelles de temps (court/moyen/long terme) ?*

4. Votre avis sur les services climatiques

[rappel bref sur le principe de service climatique : information personnalisée sur climat, conseil, formation & outils décisions adaptés aux utilisateurs pour réduire vulnérabilité de l'activité, optimiser ; apprentissage mutuel]

4.1. Pour vous, qu'est-ce qui est/serait primordial dans le service climatique :

4.1.1. **Que pourriez-vous en attendre ?**

4.1.1.1. *amélioration, quelle résolution par ex. ?,*

4.1.1.2. *Outils d'analyse, de compréhension ?*

4.1.1.3. *Conseil, sensibilisation ?*

4.1.2. **Des critères importants dont vous auriez besoin ?**

4.1.2.1. *Prévisions saisonnières, décennales ?*

4.1.2.2. *Projections sur Changement Climatique ?*

4.1.3. D'inclure d'autres enjeux : *estimations des impacts, de l'adaptation (cout etc.) ? autres ?*

4.2. De votre point de vue/dans votre activité, les utiliseriez-vous afin de :

- 4.2.1. évaluer *impacts* CC sur fréquentation touristique ?
- 4.2.2. évaluer *vulnérabilité* de cette fréquentation au CC ?
- 4.2.3. Mettre en place des stratégies *d'atténuation* ? *d'adaptation* ?
- 4.2.4.** Conseil/Sensibilisation des acteurs dans champs de vos compétences ?

5. Globalement, en regard des données auxquelles vous avez accès actuellement, de quoi avez-vous, auriez-vous besoin ? (qu'est-ce qui vous manque ou que vous souhaiteriez avoir ?)

- 5.1. Régions géographiques couvertes ?
- 5.2. Résolution spatiale, temporelle (mensuelle, journalière..) ?
- 5.3. Horizon de temps ? (prévisions décennales, projections climatiques, 10-20+... ?
- 5.4. types de variables – critères ? (température, précipitations... multiplication évènements extrêmes ?)

6. Souhaitez-vous rajouter quelque chose ?

Invitation : 1^{er} atelier de travail qui aura lieu le 19 septembre prochain, à Montmélián

ANNEX 3. Workshop invitation and program



Objet : Invitation au Workshop CLIM-RUN à Montmélian, Lundi 19 Septembre 2011

Partenaire du projet européen «Climate Local Information in the Mediterranean region, Responding to User Needs» (CLIM-RUN) et leader du groupe de travail sur le Tourisme, TEC vous invite à participer au workshop «Savoie» qui aura lieu à Montmélian le lundi 19 Septembre 2011.

CLIM-RUN vise à poser les bases de futurs services climatiques à l'échelle régionale et locale en Méditerranée, pertinents et utilisables par les différents secteurs et acteurs de la société (institutions, associations professionnelles, prestataires de service, ONG...). Le projet étudie plus particulièrement les secteurs du tourisme et de l'énergie ainsi que le domaine des catastrophes naturelles. Une étude de cas est dédiée au tourisme dans les Alpes françaises.

CLIM-RUN suit un processus d'apprentissage dans lequel la participation précoce des parties prenantes est essentielle. Il s'agit en effet d'établir un canal de communication privilégié entre les partenaires du projet en charge du développement des services climatiques, et les acteurs du secteur concerné, sollicités pour exprimer leurs besoins en informations climatiques et initier ainsi le processus de construction de ces services (approche de type bottom-up).

Aussi, pour soutenir vos activités et contribuer à optimiser votre prise de décision dans la région, nous vous invitons à venir échanger et communiquer sur vos besoins en informations climatiques lors de ce workshop.

Vous trouverez en pièce jointe le programme détaillé de la journée ainsi que les informations pratiques.

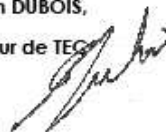
Merci de bien vouloir nous confirmer votre présence avant le 9 Septembre 2011.

Romain Berard, expert TEC sur l'étude de cas Savoie, est votre interlocuteur privilégié : rom.berard@gmail.com (tél : 06 23 52 61 36).

En espérant vous compter parmi nous,

Ghislain DUBOIS,

Directeur de TEC



TEC
www.tec-conseil.com
38 rue Sénac de Meilhan - 13001 Marseille, France



Workshop CLIM-RUN en Savoie

Montmélián (Francin), 19 Septembre 2011, 9h30-16h00

Programme

9h30	Accueil des participants
10h-10h20	Présentation du projet et des acteurs de CLIM-RUN, du concept de service climatique, de l'approche bottom-up et de l'étude de cas tourisme Ghislain Dubois, Directeur de TEC <i>Discussion</i>
10h30-11h	Le climat : contrainte ou ressource du tourisme de montagne ? Philippe Bourdeau <i>Discussion</i>
11h00-11h20	Le climat passé et présent : présentation, offre actuelle de la climatologie, exemples de services climatiques envisageables Clotilde Dubois, CNRM
11h20- 11h45	Panorama de l'étude de cas tourisme en Savoie : les acteurs identifiés, la méthodologie d'enquête, les enseignements des entretiens (utilisation actuelle de l'information climatique, les impacts majeurs identifiés, les premiers besoins exprimés) Romain Bérard, Expert TEC Echanges avec les acteurs sur leurs attentes, spécification et hiérarchisation des demandes de données pour le projet CLIM-RUN
12h30-13h30	Pause déjeuner
13h30-13h50	Le climat futur, l'incertitude et la communication : présentation, offre actuelle de la climatologie, exemples de services climatiques envisageables Clotilde Dubois, CNRM

13h50-14h10	<p>Panorama de l'étude de cas tourisme en Savoie : les acteurs identifiés, la méthodologie d'enquête, les enseignements des entretiens (utilisation actuelle de l'information climatique, les impacts majeurs identifiés, les premiers besoins exprimés) Romain Bérard, Expert TEC</p> <p>Echanges avec les acteurs sur leurs attentes, spécification et hiérarchisation des demandes de données pour le projet CLIM-RUN</p>
15h-16h	<p>L'implication des acteurs dans la suite du projet : mode de travail, niveau d'engagement souhaité, formulation des priorités</p> <p>Au-delà de CLIM-RUN, réflexion sur la formalisation et l'institutionnalisation des services climatiques</p>
16h00	Clôture du Workshop

Informations pratiques

Vous souhaitez confirmer votre participation :

<p>Votre interlocuteur : Romain Bérard</p> <p>Tél : 06 23 52 61 36</p> <p>Mail : rom.berard@gmail.com</p>

Merci de nous confirmer votre participation **au plus tard le 9 septembre.**

Lieu du Workshop :

<p>Parc d'activités Alpespace</p> <p>Centre d'accueil et de services La Pyramide – Salle Kheops</p> <p>61 voie Jean-François Champollion</p> <p>73800 FRANCIN</p> <p>Tél : 04 79 84 38 50</p>

Comment venir ?

Prendre la **sortie n°22** depuis l'**A43** (plan en pièce jointe)

La Pyramide est située à l'entrée du Parc d'activité Alpespace

Déjeuner :

Le déjeuner est pris en charge par le programme Clim-Run

Plus d'information sur le projet CLIM-RUN :

<p>www.climrun.eu</p>

ANNEX 4. Requested variables

- A- Past climate

	EXPECTATION	RELATED VARIABLE	Time HORIZON	Spatial / Time RESOLUTION	
A	Particularly hot or cold summers	Temperature	-40/50 years	To be determined	Time: seasonal averages (extremes + average for comparison)
B	Particularly "bad" summers: overcast and rainy	Rainfall Sunshine			As above
C	Particularly warm and dry winters	Temperature Rainfall (Snow cover)		(winter+shoulder season, spring)	
D	History-frequency of extreme weather events (summer)	Drought (1) Heat wave (2)		3 & 4: regionalised (to be determined)	
		Heavy rainfall (3) Storms (4)			
E	Understanding natural climate variability	As above + glacial cycle	-100 years... and +	Annual / pluriannual/ decadal variability	

- B- Future Climate

	EXPECTATION	RELATED VARIABLES	Time HORIZON	Spatial / Time RESOLUTION	
A	Summer season evolution trends	Temperature /Precipitation Sunshine/Cloud cover	+5/ 20 years	Northern French Alps – <i>Altitudinal zone plain/mid-/high-mountain areas</i>	Seasonal/ monthly average
B	Summer season profile(weather variations)	Temperature, sunshine			Shoulder season variability (up to weekly)
C	Shoulder season conditions (early summer season)	Temperature, sunshine			Monthly: May/June (trends & variability)
D	Spring ski conditions	Snow cover, sunshine			Monthly: March /April
E	Autumn shoulder season conditions: an extension of the November school holidays	Temperature, sunshine, precipitation		<i>to be determined</i>	Seasonal-monthly(Sept ember-October-November)

	EXPECTATION	RELATED VARIABLES	Time HORIZON	Spatial / Time RESOLUTION	
F	Frequency and length of droughts	Precipitation (Temperature)	+ 5 / 20 years	<i>To be determined</i>	Yearly / seasonal / monthly frequency
G	Frequency and length of heat waves	Temperature		<i>To be determined</i>	
H	Storm frequency trends	Wind		<i>To be determined</i>	
I	Trends related to the Foehn effect (multiplication?)	Natural disturbance regime, "Number of days with south-westerly wind flows"	+ 5 / 20 years	Northern French Alps / internal massifs	Seasonal/monthly
J	Temperature evolution in high mountain areas (glacier hiking conditions, risks)	Temperature, isotherm evolution (heat waves)	+ 5 / (20 years)	Mont-Blanc area	
K	Management of rises in water levels, floods (+ glacier water pockets)	Precipitation, heavy rain	+ 5 / 20 years	<i>To be determined (+ Mont-Blanc area > 4000m)</i>	
L	Profils des jours / nuits	Temperature, durée ensoleillement	+5/20 years		Daily / day-night alternation

	EXPECTATION	RELATED VARIABLES	Time HORIZON	Spatial / Time RESOLUTION	
M	Evolutions affecting the flow of streams and rivers	<i>Precipitation, droughts & heavy rainfall</i>	+ 5/20 years		
N	Evolutions in water conditions	Lake temperature, wind evolutions	+ 5 / 20 years	Lac Bourget	(weekly variability)
O	Winter snow conditions: "How much less snow is there? When?"	Snow coverage - temperature	+ 5 / 10 years – 20	Station-valley/département	<i>To be determined</i>
P	<i>Tourists' sensitivity to the climate</i>	<i>Tourist climate/comfort index</i>