Deliverable Report

Second Stakeholder Engagement and Dissemination Report

The Added Value of Seasonal Climate Forecasts for Integrated Risk Management Decisions

(SECLI-FIRM)

EU H2020 Project (ref. n. 776868)

D5.9: Second Stakeholder Engagement and Dissemination Report

[Dissemination level: Public]

Version Table

Name/Party	Description	Date
D Woodliffe and J Ogonji (WEMC)	First Draft	06/11/19
Prof. A Troccoli (UEA)	Second Draft	25/11/19
D Woodliffe (WEMC)	Final Draft	27/11/19
A Troccoli (UEA)	Review/Edit of Final draft and finalise deliverable	30/11/19

Internal Review Table

Name/Party	Description	Date
L Penny and C Goodess (UEA)	Review of first draft	13/11/19
E Bertocco (WEMC)	Review of first draft	14/11/19
A Troccoli (UEA)	Review of first draft	18/11/19
L Penny (UEA) and J Ogonji (WEMC)	Review of final draft	28/11/19

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1 Executive summary

This report (Deliverable 5.9) summarises the stakeholder engagement and dissemination activities for the EU H2020 project, *The Added Value of Seasonal Climate Forecasts for Integrated Risk Management Decisions* (SECLI-FIRM, running from February 2018 to July 2021). The report covers activities since the previous Stakeholder Engagement and Dissemination Report (D5.6) submitted in March 2019 (M14). The tasks included in this report were originally set out in the Communications and Dissemination Plan (D5.3).

The SECLI-FIRM project has a broad range of stakeholders drawn from sectors including academia, research, industry (energy and water sectors) and government. Engagement and dissemination activities must meet the needs of these groups. In order to achieve this, the SECLI-FIRM project team has set up a number of channels to communicate and disseminate information in the most effective, informative way for the different stakeholder groups. These include social media, website, video, conferences, workshops, emails and newsletters. In turn, this will maximise the opportunity to increase engagement and participation in the project.

While considering each channel, this report focuses on the stakeholder workshops, which are the key medium for stakeholder engagement, allowing maximum interaction and input from participants. In addition to Workshops one and two in June 2018 and January 2019 respectively, the third of the five planned stakeholder workshops was held in September 2019. The content and outcome of this event is detailed in this report, including a summary of the workshop, links to presentations and some valuable comments and feedback to be considered in the future.

The remainder of the report looks at the development of the SECLI-FIRM website, the case study flyers which introduce and summarise each of the nine SECLI-FIRM case studies and the new case study benefit video, produced to show the added value for external industry stakeholders. The report also mentions additional communication channels, and how each are used to share project information with the target audiences.

1.1 Project Objectives

The aim of SECLI-FIRM is to demonstrate how the use of improved climate forecasts, out to several months ahead, can add practical and economic value to decision-making processes and outcomes, primarily in the energy sector, but also in the water sector. This objective is being addressed through nine case studies for Europe and South America (especially Colombia), focusing on recent seasons with anomalous/extreme climate conditions leading to problematic and quantifiable impacts for the energy and/or water industry. The case studies have been co-designed by industrial and research partners. Further information is available on the project website: www.secli-firm.eu

2 Stakeholder engagement and dissemination

Stakeholder engagement, communication and dissemination activity for the SECLI-FIRM project is covered under Work Package (WP) 5, specifically:

Task 5.2 – Plan and execute focused stakeholder roundtables and workshops as well as organising other interactions with experts.

Task 5.3 – Dissemination, Exploitation, Web portal and communication material.

Task 5.4 – Co-ordination and synergies with other relevant EU projects and other initiatives.

This activity directly relates to, and is guided by, the detailed and structured Communication and Dissemination Plan (D5.3, and its updated version, D5.7) which sets out how the objectives of the SECLI-FIRM project will be communicated to the target audiences. The plan defines the key messages and communications channels to be used for each target audience and how the success of these will be evaluated.

2.1 Communication plan objectives

The objectives of the communication plan are to:

- Raise the profile of the project among end-users;
- Raise the profile of the project among the climate modelling and climate service communities;
- Offer end-users opportunities to influence project direction and to potentially contribute to its outputs;
- Produce relevant, user-driven and scientifically robust, end-to-end proof-of-concept for end-users.

2.2 Target audiences

Stakeholder analysis has been carried out to identify the project's target audiences, to ensure communications and dissemination activities are tailored to:

- Deliver the project's communication aims;
- Meet the needs of each specific group, making project information meaningful and usable.

The stakeholder engagement matrix in **Table 1** shows these key audiences.

Table 1: Stakeholder engagement matrix participants

Stakeholder	Example of stakeholder	Communication aim	Communication channel
Energy producing companies, TSOs, Energy Market Operators	Transmission System Operators (TSOs) and Distribution System Operators (DSOs): e.g. RTE, ERDF, Amprion, including ENTSO-E the European group of TSOs Energy producing companies: e.g. Alstom, Statkraft, Eon, Enel	• Ensure tools developed are directly relevant • Share experience • Motivate early adopters	• Website (content to include best practices, lessons learned, projects news and updates) • Case studies • Specialist workshops and training sessions • Webinars • Presentations at workshops/conferences • Focus groups and questionnaires • Social media platforms (LinkedIn and Twitter) • Meetings and 1:1 communication, e.g. email, phone • Industry events
National, regional and international organisations	National and Regional: e.g. Agence De l'Environnement et de la Maitrise de l'Energie (ADEME), DGEnergy, DGClima, European Environment Agency International: e.g. International Energy Agency (IEA), World Business Council for Sustainable Development (WBCSD), Global Framework for Climate Services (GFCS)	• Share experiences • To promote project results as potential guidance to policy making	As above, plus: • Scientific publications

Climate modelling research community	World Climate Research Programme (WCRP), Copernicus Climate Change Service (C3S), Seasonal forecasting producing centres	• Raise awareness of the SECLI-FIRM project. • Provide feedback on system performance including identification of issues where further model/system development is needed.	• Scientific publications and presentations • Conference presentations, e.g. International Conference on Climate Services, EGU, EMS/ECAC
Climate and energy private service providers	Transvalor, MeteoGroup, WeatherQuest, PrescientWeather, Ouranos.	• Raise awareness and mobilise sector interest in complete solutions and demonstrations of the value of seasonal forecasts	• Website • Scientific publications • Research output • information on the technology used and their application • Industry articles • Focus groups and questionnaires
Specialist media, wider media and general public	Horizon magazine, JRC SETIS, etc.	• Raise awareness of the SECLI-FIRM project • Share research findings and outputs. • Create greater understanding of the wider issues around seasonal forecasting and the benefits to the energy and water sectors	• Scientific and energy industry publications • Website • Social media • Newsletters • Industry events

2.3 Dissemination objectives

As set out in the Communication and Dissemination Plan (D5.3) the overall dissemination objectives for the SECLI-FIRM project are to:

- Share research results with end-users;
- Instigate and maintain relationships between the climate and energy/water sectors;
- Contribute to the progress of seasonal forecasting sciences in general;
- Contribute to the progress of climate services, particularly through methodologies for assessing the added value of these services;
- Ensure that the project objectives, activities and outcomes reach the relevant target groups, especially end-users, in and beyond the demonstration site countries;
- Ensure transparency and visibility of the project activities to acquire the needed support from crucial stakeholders.

As final results are not yet available at this stage of the project, in this first half of the project, activity has focused on instigating and maintaining relationships, ensuring that project objectives and activities reach the relevant target groups and ensuring transparency and visibility of activities to acquire stakeholder support.

2.4 Stakeholder engagement workshops

The stakeholder engagement workshops form a key communication and dissemination channel for SECLI-FIRM. Throughout the duration of the project five workshops are being delivered, targeting relevant stakeholders from the energy and water sectors. Towards the end of the project stakeholders from other sectors such as agriculture may also be involved to explore any possible transferrable learning from the implementation of the nine SECLI-FIRM case studies. Note however that stakeholders from these other sectors are already participating in SECLI-FIRM engagement activities (e.g. the coordinator of the EU H2020 VISCA project is part of the SECLI-FIRM Advisory Board).

The workshops are an evolving series of events representing the different stages and progression of the project. This means the focus of each workshop and the specific target audience will be different for each event, as defined in the strategic communication and dissemination plan. As the project progresses, the target audience ratio adjusts in favour of the energy and water industries for workshops four and five.

Workshops are taking place approximately every eight months. To date (end of November 2019), three stakeholder engagement workshops have been held. The process involved in organising the most recent workshop, plus the content and output from the event are documented in this report. For instance, as for all the SECLI-FIRM workshops, a series of Workshop Organising Committee meetings were held. The whole of the project team were invited to contribute fully to the organisation and to agree which aspects of the project would be covered. Meetings were held on a three-to-five-weekly basis and covered objectives, overarching theme and specific content, speakers, activities and logistics.

3 Stakeholder Workshop 3

The third SECLI-FIRM stakeholder workshop (Milestone MS5.4 of the project's stakeholder engagement commitment) was arranged in accordance with Task 5.2 (*Plan and execute focused stakeholder roundtables and workshops, and organise other interactions with experts*) of WP 5.

Considering the about mid-way development point of the project, the third SECLI-FIRM workshop had a mixed structure. Starting with a networking event exploring possible applications of the SECLI-FIRM output with experts from the local area (on the evening of 18th September), followed by an Advisory Board/stakeholder feedback workshop (on 19th September, whole day event). The third stakeholder workshop and the project meeting were held at Dunston Hall, a hotel and conference centre located just outside Norwich, UK. The somewhat secluded country venue was selected to encourage close participation between the project team themselves, as well as between the project team members and stakeholder workshop participants.

The objectives of the stakeholder workshop, as agreed by the Organising Committee, were to:

- Gain feedback and commentary on the project so far;
- Define and outline the key messaging and benefits for exploitation;
- Encourage consideration of climate and weather effects on operations and long-term decision making;
- Discuss the communication of benefits to users and how to make the learning applicable to the industry.

The stakeholder workshop was preceded by a project meeting. This was aligned with the 18-month review milestone of the project and therefore enabled the team, and later the Advisory Board, to take stock of the progress over the first part of the project. This meeting took place over two days and covered presentations from all WP and Task leaders, giving the team the opportunity to have an appreciation of the breadth of the output being produced by SECLI-FIRM. Special focus was given to the assessment of the value add of climate information, and the related decision-making trees. As well as the interaction between the scientific components of the project (in WP2) with the case study applications (in WP3). This schedule meant that team members were arriving at the stakeholder workshop already engaged and up to date on the project with fresh opinions to share with stakeholders.

The evening networking event was a two-hour catered event with minimal presentation time and ample time for interaction between the invited stakeholders and the project team.

The **Advisory Board** meeting was a full day event, with overview presentations from the project and WP leaders, followed by a lengthier discussion period, as previously requested by the Advisory Board. Discussion focussed on the best way to assess the value of seasonal forecasts, also with the help of decision trees, and on identifying the most appropriate evaluation method for the SECLI-FIRM case studies. The discussion on the exploitation of the

SECLI-FIRM output, namely the climate services ensuing from each case study, was the other key focus of the workshop.

The Advisory Board/stakeholder workshop was followed by an additional half-day hands-on computer programming session (on Friday 20th September), or technical exploration[1], of the forecast data to allow SECLI-FIRM team members to work closely together on specific codes for the processing and assessment of seasonal climate forecasts and to flag any potential problems.

3.1 Communications

Along with the SECLI-FIRM Advisory Board, which includes several industry experts and stakeholders, this workshop, and specifically the networking event, was advertised to the local target audience, including the scientific community, and energy and water industry professionals via personalised email invitations.

All communications were SECLI-FIRM branded, in line with the project brand guidelines and designed for multi-channel distribution. Details of the project and workshops were also communicated through the SECLI-FIRM and World Energy & Meteorology Council's communications platforms. An example of the visual communications produced for workshop 3 is shown below.

3.2 Attendance

The workshop attendance reflected the focus and desire of the team to capitalise on the cross workpackage opportunities whilst involving industry stakeholders. These included the SECLI-FIRM Advisory Board, project team members from each of the partner organisations and representatives from the water, energy operating systems and energy sector. For this third workshop, 29 delegates attended in total, 10 of whom were SECLI-FIRM Advisory Board members. That nearly all members committed to the travel and accommodation required for the workshop, reflects the positivity, interest and engagement of the SECLI-IRM project.

3.3 Networking Event

The evening networking event was fast-paced and aimed to encourage interest in the project from local energy and water industry and policy stakeholders. Attendees included experts from Vattenfall, the East of England Energy Group association (https://www.eeegr.com), as well as the SECLI-FIRM Advisory Board members. Following a short summary presentation by the project leader, stakeholders were invited to view SECLI-FIRM case study posters and ask questions about the project, while enjoying some informal food and drink. The networking

[1] The committee also discussed the option to turn this session into a mini-hackathon, but this was felt to be premature, and it will considered at a later stage in the project.

event was well received, with conversations continuing beyond the set time for the end of the event.

Figure 1 – Workshop 3 flyer

Figure 2 – Group photo of Workshop 3 participants.

3.4 Stakeholder Workshop

The **Advisory Board/Stakeholder Workshop** was held over one day from 9.00am to approximately 4:30pm. The workshop was structured to highlight some of the latest updates and to discuss exploitation opportunities and evaluation methods.

The programme featured a 'round table' discussion session to allow Advisory Board members and industry stakeholders to raise concerns, and to encourage feedback relating to the nine project case studies, as well as work package updates and future planning. The Advisory Board was also provided with updates about the project ahead of the meeting. These included deliverables such as the *First Progress Management and Technical Report*, to facilitate a more informed discussion. The full programme of the day is shown in Table 2.

Some questions to help guide workshop discussion were also identified:

1. How do we embed the multi-model seasonal forecasts output produced by the project into long-term decision making?
2. What can we effectively communicate what the project is producing?
3. How can we use our output to influence internal decision making where cost is a factor?
4. How can we exploit the case studies with our stakeholders and build protocols for the end users?

Table 2: Workshop programme of events

Time	Title	Speaker
9:00-9:30	Round table discussion	Advisory Board members
9:30-9:45	Project update	Prof. Alberto Troccoli (University of East Anglia, UK)
9:45-11:00	Work package updates	Work package leaders
11:00-11:30	Coffee Break	
11:30-12:00	WP4 planning	Joe Osbourne (Met Office)
12:00-12:45	Advisory Board summary feedback	Advisory Board members
12:45-14:00	Lunch	
14:00-16:00	Discussions around Value add assessment and project exploitation	All
16:00-16:30	Wrap up session	Prof. Alberto Troccoli (University of East Anglia, UK)

3.5 Round Table Discussion – Introductory Remarks

The session began with a welcome from project leader, Alberto Troccoli, and a round of introductions for the meeting attendees. The main objective of this session was to get feedback and comments from the Advisory Board on the project as a whole and their expectations of the day. The Advisory Board members' introductory comments were very instructive around the view of experts familiar with the project. They not only set the scene for the ensuing discussions, they also offered some practical advice on how to make the project more effective.

Several of the comments emphasised the need for the project to show and share a broader outlook of the beneficial value of our results to the energy industry. In particular, the need to clearly outline our key messages to make the results relevant for the market was identified as an important aim of the workshop.

It was also stressed that, in order to achieve this goal, we need to ensure that everyone understands how weather affects energy and water operations, and management decisions over a different periods. The result of this will help us understand how to spotlight these learnings to people at companies such as National Grid, Shell, Thames Water, TenneT, etc.

In other words, *what can we communicate to show that the project and its output is succeeding?* It was discussed that such messages should involve new ways to communicate the benefits of a step change in how seasonal forecasts are used. And should explore how the industry technical experts on the Advisory Board can use the project output to influence internal (organisational) decision making especially where cost is a factor. The conservative nature of the energy and water industries should be considered also. It was agreed that we should also focus on how we can change the minds of the *purse holders* when there is a lot at stake.

Another area of interest is how the case studies can be used to interact with stakeholders from other industries (e.g. farmers) and build protocols so the end users can make the most of the final product.

In regard to scientific/seasonal data, we should not assume that seasonal forecasts are always useful or relevant; and not all case studies might be able to influence change. But it is important to implement tools, methodologies and share lessons so that other projects and stakeholders can adopt them, and in so doing create a robust legacy for SECLI-FIRM.

3.6 Project overview update and presentations by WPs

The speaker presentations are summarised below, along with links to each presentation. Project leader, Prof. Alberto Troccoli (UEA), provided a short overview of the SECLI-FIRM project. Prof. Troccoli took the meeting through the technical components of the prediction system to specifically emphasise the physical basis of seasonal forecasts and the reason why seasonal predictions are sound. This topic was highlighted during the networking event as a key element for stakeholders to grasp in order to gain more confidence about the rationale for, and robustness of, seasonal climate forecasts. To this end, Prof. Troccoli focused on the oceanic component as the main driver for predictability on seasonal forecasting timescales of a few to several months, depending on location and season.

Project update – Alberto Troccoli (UEA)' presentation.

Questions were asked in reference to recent reports that indicate that 5G may be interfering with channels for satellite measurements and the ability to measure variables such as radiative properties of the atmosphere. It was agreed that while this may be a concern, there are many sources of data as well as frequency channels that would help mitigate such an effect. Also, since a long time period is needed to compare the observations with hindcasts from the last ca. 30 years, these potential changes would only marginally affect the overall seasonal forecasting system. Following this overview, the Work Package leaders then presented updates and reports on their progress so far in relation to their specific tasks and deliverables.

Dr Clare Goodess (UEA) presented the WP1 output. It focussed on the work undertaken to identify the role of seasonal climate forecast in the decision making of individual case studies, including the use of decision trees. She also set the scene for the assessment of the value of case studies and eventually how integrate across them.

It was recommended by the Advisory Board that we should consider combining several approaches for assessing value add, and not be limited to just one.

Following an overview of results obtained by WP2 presented by Dr Andrea Alessandri (KNMI), interest was raised around the ability of the weather type approach used by the Met Office to predict wind speed better than temperature. This, it was explained, is due to the fact that weather types are based on pressure patterns and so are more directly linked to wind speed than temperature. It also emphasised the need to provide skilled measures and reliability of seasonal forecasts. These are essential but complex factors, and raised questions around how we can use and embed them into the decision-making process.

Dr Marco Formenton (ENEL), together with other case study leaders, then provided a brief update of each case study. Questions focussed around how current decision systems, which cover a week in advance, would be extended to the seasonal forecast range for case studies six and seven. This would be a considerable jump, particularly when the key variables needed for these case studies are not predicted well on seasonal time horizons (e.g. wave height). It was argued that the extension of the lead time does not necessarily need to go straight from days to months, but a few weeks can be considered instead as a practical transition to longer (seasonal) time horizons.

Prof. Troccoli presented a WP5 update on communication, dissemination and exploitation flow. As explained, the project is currently developing the dissemination stage which is complementing the more mature communication phase. Exploitation of results is still premature but was also discussed in a separate session later in the Workshop.

Following the WP5 presentation, the discussion opened to a more general feedback session. Questions were raised around how we can effectively communicate to the decision makers, e.g. portfolio managers, in the energy and water commercial companies, by using innovative methods to complement the available tools (e.g. case study flyers). Addressing this issue could increase external uptake. However, in this process it is also important to adapt the level of communication according to the stage of the project and its output. Once the project is in tis mature phase (towards the end of 2020), it will be possible to strengthen and externalise our message.

In the meantime, it was recommended by the Advisory Board that new opportunities to promote the project, with particularly emphasis on portfolio managers, should be assessed. This would involve reducing the level of complexity of the information communicated to make the project output accessible to a broader audience, including other sectors. Directly involving the portfolio managers in the conversation and seeking their opinion would also be an effective way to tailor the communication of the project. As it was noted by the Advisory Board, there is strong potential for other industry players to tap into this project as well. To improve credibility, it was agreed that we need to start showing success in one or two case studies and then upscale. The communication to the wider audience will involve the dissemination of concrete results.

Reference to a recent paper highlighting the stakeholder engagement process which followed the C3S ECEM project was also noted as a relevant lesson learned[2].

The Advisory Board further emphasised that the message should be kept as simple as possible around the fact that we are proposing a technical solution with minimal cost but potentially high return. One option could be to use targeted bite sized videos targeted to directors (making financial decisions) and technical team members (information decisions). Once we have one industry engaged, we can use this as a convincer to encourage more engagement. It was noted that there were people in the meeting who work within the relevant industries at various levels and we should therefore make best use of the available resources. The more technical experts will need help articulating these messages up the chain to the decision makers through tailor-made videos, for example.

3.7 WP4 planning and exploitation of project climate services

An important component of the workshop was a discussion on project exploitation. WP4 was also introduced prior to initiation in November 2019 by Dr Joe Osborne (Met Office) as it is key to the exploitation of one of the main project outputs, namely the non-operational climate services. This WP includes the development of a framework for communicating between science and end users.

In the context of exploitation, it is important to consider what other parallel climate services projects are developing their products. In fact, there are around forty climate service projects at different lifecycles funded under different EU schemes (H2020, ERA4CS, C3S). As SECLI-FIRM, we are involved in some of their Advisory Boards or task forces and through these connections we are already sharing solutions to common problems e.g. C3S Energy, ERA4CS CLIM2POWER, other H2020 projects. The whole idea of these projects is to explore opportunities to see what works and what doesn't, and to provide a market for them.

As part of the exploitation it was noted that we should undertake the stakeholders' workshop at locations where there are actual users available or interested to travel to. It is also important to provide training opportunities to help with decision making as users generally do not have the protocols to deal with seasonal forecast data. In addition, the use of 'one to one' meetings as a means of exploitation was identified as more commercially viable for key industry decision makers.

The Advisory Board further highlighted the importance of co-design by tailoring to each user's needs. This also means identifying the preferred visualisation method of each user. Trying to synergise with other users may defeat the purpose, though there can be transferrable lessons and other benefits in sharing lessons across case studies/climate services.

[2] Goodess C, Troccoli A, Acton C et al. (2019) Advancing climate services for the European renewable energy sector through capacity building and user engagement, to appear on Climate Services journal.

Following this, an in-depth discussion ensued around the use of the term *non-operational* as it appears in the SECLI-FIRM work plan to describe the developed climate services for each case study. The Advisory Board felt that referring to a *non-operational* service might make some users shy away from engaging with the service if there is no guarantee of reliable data delivery. It was clarified however that while the SECLI-FIRM climate services are unlikely going to be fully operational during the implementation of the project, the plan is to lay the ground for their operational phases. Similarly, *prototype* is another problematic term. After some discussion it was convened that *trial* climate services would be a more engaging way to refer to the work SECLI-FIRM is producing. The final aim must be to crystallise the climate services into mechanisms that routinely help industry.

We also discussed how it might be worth simplifying the post-processing of seasonal forecasts to guarantee a timely, and eventually operational, delivery. It could be sold as a trial to coincide with the ending of the project and we could offer it to partners to try out in real time on the agreed date to decide on its benefits/or not. This would allow for the service to be taken seriously and let people make investment decisions about it before they have concrete information.

In line with these recommendations, it was mentioned that the project is working to put together the elements to show what delivery would look like. It could be a fact sheet or a monthly summary update. In terms of a graphical interface, this involves more work.

Overall, we do aim to move towards operational status for each of the case studies. In terms of visual interface solutions, the ECEM demo is going to be a good starting point, though it should be clear that this does not mean a data portal for each case study.

3.8 Value add assessment: evaluation methods and decision trees

Dr Nicholas Vasilakos (UEA) provided an overview of the evaluation methods researched for the SECLI-FIRM project as described in deliverable report D1.4 '*Review of methods for economic assessment of seasonal forecast value*'.

It was also reminded that the purpose of the project was to assess the economic value. The discussions on value led to the development of decision trees to define the thresholds in the decisions, especially in relation to climate. It comes down to how we consider climate factors in the decisions of our case studies, and how we can use decision making models to make better decisions. This is a major challenge for the project, namely, to understand where climate information can be introduced in the decision trees.

The decision trees help to illustrate the specific decision-making processes, thus making them clearer. We are applying the decision trees with old payoffs and currently used climate information, then undertake a similar process with the new seasonal forecasts. The difference between these will show us the added value of it. At this stage there is no sufficient data from the project to test these economic evaluation approaches for our case

studies. However, we are looking to start with the simplest case studies to provide examples for the others.

It was also noted that the presented valuation theories are based on monetary value, and specifically monetary savings made by making informed decisions. It is about maximising payoffs and minimising costs. Safety has a monetary value in terms of paying less compensation. It could be brought in at a later stage but not in the first walk through. In this case, avoided cost would be the most suitable method to use. Avoided cost in particular would be a good method to adopt to avoid monetary fines and other hidden costs, but it is not straightforward. SECLI-FIRM should help us bring the cost of electricity or water production down. The cost loss estimates the threshold probability. Cost loss is popular in the literature, but it is harder to put into practice as one often does not have all the avoided costs.

Currently the climate information used in decisions is largely deterministic. We aim to replace this with probabilistic forecasts and accompanying information about confidence, reliability and skill. One way to start introducing probability output would be to adopt a probability distribution function approach (e.g. using industry relevant P-levels). It is worth noting that even when we are talking about climatology, there are probabilities for each month. Using the decision tree, factors like vessel availability or plans to do the work elsewhere can affect the decision if it exceeds the threshold.

To conclude the value assessment session, a quick exercise to test willingness to pay, which is one of the valuation approaches, was run amongst industry stakeholders. The question was raised: *If a seasonal forecaster gave you an update every month for two years, and you also rang your provider three times a month to clarify the info provided, how much would you be willing to pay in $/£/€?* Most responses to this exercise ranged between 20k – 50k, with some caveats (e.g. some users only require forecasts at certain times of the year).

3.9 Wrap up session and summary

The project leader commented that this third SECLI-FIRM stakeholder workshop achieved its overarching objective of bringing together key stakeholders, particularly the Advisory Board members, as they are more familiar with the project. The workshop was highly effective in providing candid feedback and in discussing the challenges, and steps ahead.

It was agreed that from a scientific perspective, the aim of the project should be to create a calibrated product where the sources of data from different seasonal forecasting systems are combined. It was also noted that using climatology is not always straightforward, but that a lot of information can be extracted from the historical records. For instance, it was recommended that analogue methods be used as a benchmark. Also, some case studies may find that a monthly seasonal forecast that only samples the initial conditions might not be enough for those who need frequent updates or to catch certain conditions. In this case it might be worth considering sub-seasonal forecasts, though the highest/original temporal resolution of

seasonal forecasts (daily or sub-daily) could be used to generate scenarios. The need to pay attention to details, such as the fact that while we are still working with winters defined as December-January-February (DJF), was also highlighted. We must recognise that 'winter' storms happen outside of these three-month periods.

The project needs to develop bite sized information for decision makers as they have little time to spare. Bite sized bits of information can also be examples of how other companies in the same sectors have made use of the data. A specific recommendation was for short, simple videos targeting key decision-makers be produced to explain what each case study is about. These could raise awareness about the SECLI-FIRM project and as a result of this, the SECLI-FIRM communication team has already started production with input from Advisory Board members and case study industrial partners.

It was made clear that ensuring climate service *trials* developed during SECLI-FIRM are sustained after the project end is an important target. Indeed, industry partners and stakeholders are involved in the project because they want to see the climate services become operational – they are much less interested in yet another demo exercise.

Summing up, the Advisory Board noted that very good progress has been made with the SECLI-FIRM project. It is becoming a reality and there is still time to make it tangible as there is a lot of interest in weather/climate now. If new or additional methods of improving skill in certain aspects of weather are developed, users are interested in them and want to learn how to adopt them in their business. Seasonal forecasting is the next step. But users want to go further with it. It might be an idea to produce a video on one of the case studies, e.g. wave height as it is set up simply and easy to explain, to help communicate what the project is achieving to time-poor portfolio managers.

In closing, the project leader thanked the Advisory Board and all stakeholders and the SECLI-FIRM team for their contributions and the highly engaging discussions and feedback. The next Advisory Board meeting and project meeting will be combined and tentatively held in May2020.

4 Website

The official SECLI-FIRM website (www.secli-firm.eu) was launched in March 2018 (see also D5.2). The website provides a high-level description of the project and its objectives. It also includes more detailed outputs, such as links to scientific publications, public reports, general information, news and dissemination material.

Figure 3 – Copy of the SECLI-FIRM web site landing page

As the project progresses, the website structure and content is being continually revised, considering feedback from both partners and stakeholders. The changes made so far serve specific needs:

- Promoting project results, e.g. case study updates;
- Publishing project news and updates, as well as sharing wider industry commentary;
- Featuring videos on case studies and the overall project;
- Providing online feedback mechanisms for target audiences and the general public.

In addition to these specific changes, the case studies have been refreshed and updated as results and further information has come from the stakeholders in WP1. The full suite of updated, downloadable factsheets are now displayed in an interactive map showcasing the locations and stakeholders of each case study.

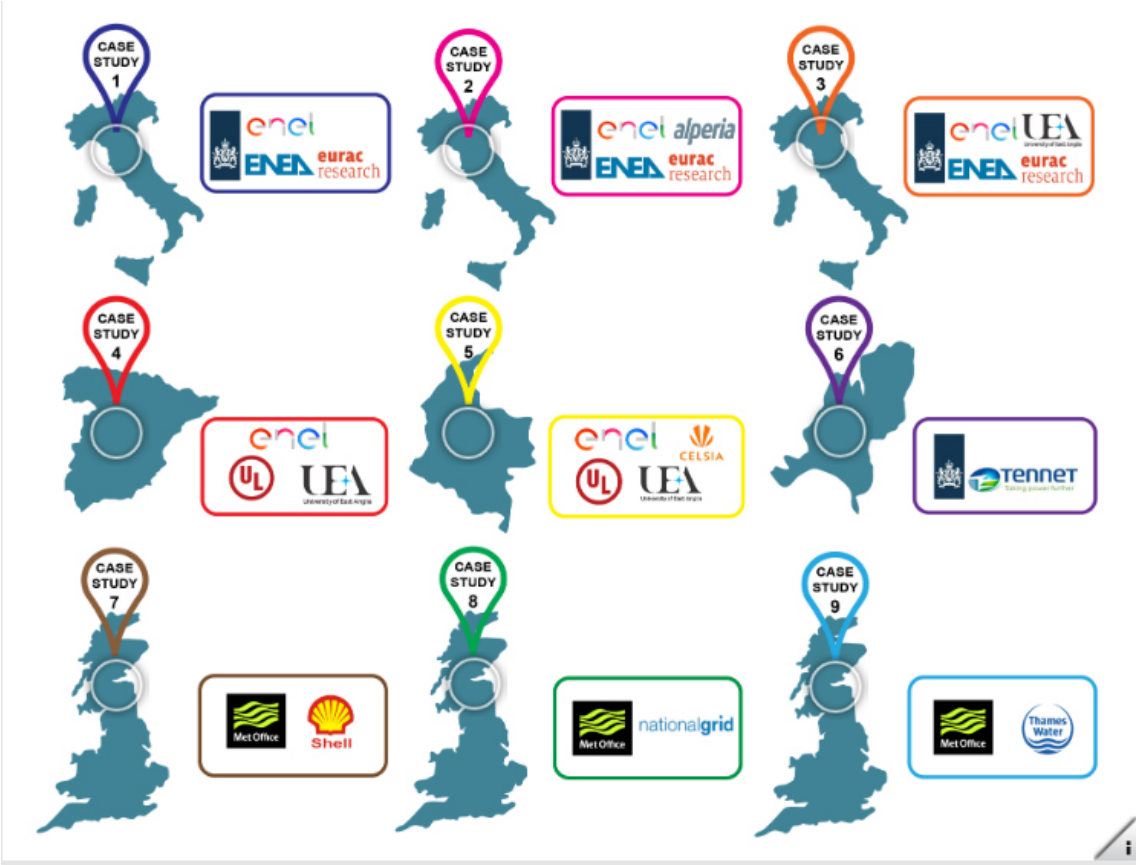

Figure 4 – Copy of the interactive map featured on the website

There are also updates and information on recent presentations in Vienna, Lisbon and Copenhagen at global science and energy events, and the flyers and project reports have been kept up to date.

4.1 Website Analytics

The following analytics cover website activity from the beginning of April 2019, up to the end of October 2019 covering the period since the previous D5.6 report.

Visitor numbers have remained steady over the past seven-months, with a small increase over time coinciding with events and appearances. They are typically returning visitors (83.1%) with new visitors accounting for 16.9%.

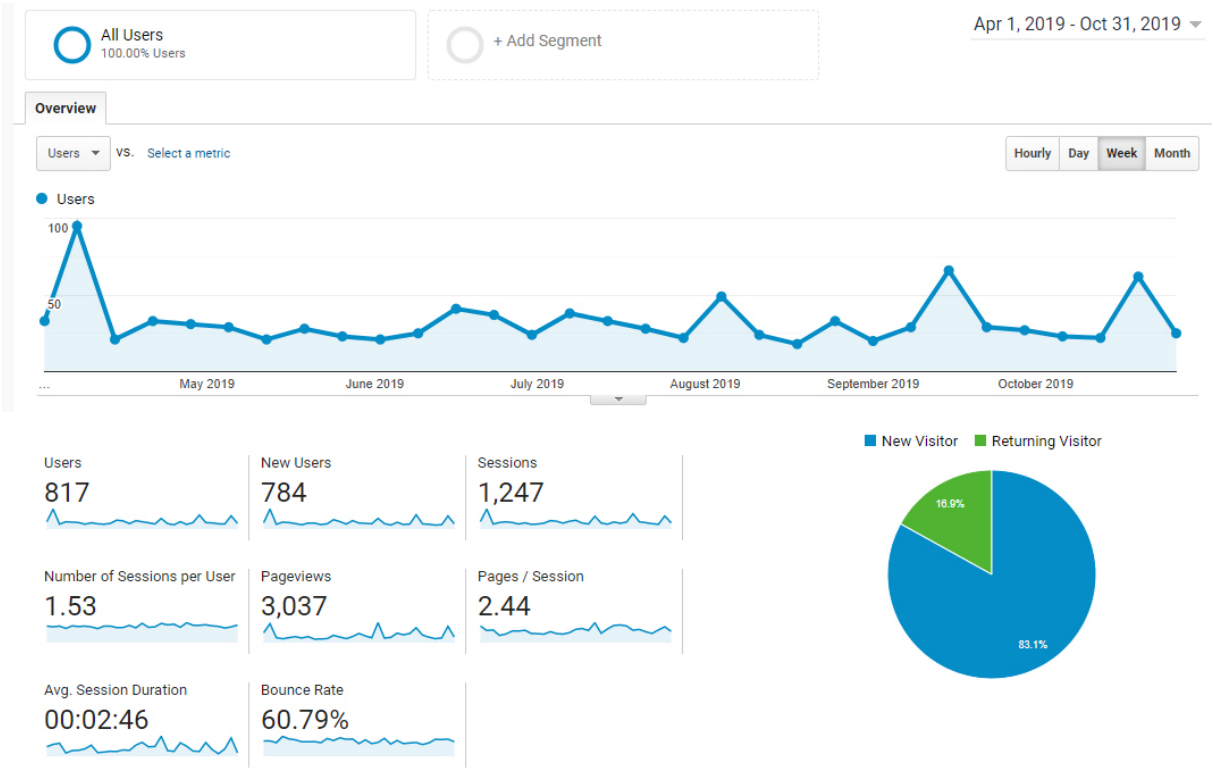

Figure 5 – Report showing SECLI-FIRM video visitors.

Audience location is still as varied, but it appears there has been a slight change with the top two locations. As opposed to previously, more visitors came from the United Kingdom (22.6%), with the US now following in second place with 19.1% instead. Italy remains our third most popular user location (12.2%).

1.	United Kingdom	22.61%
2.	United States	19.11%
3.	Italy	12.21%
4.	France	5.80%
5.	Netherlands	3.75%
6.	Spain	3.02%
7.	Belgium	2.30%
8.	China	2.18%
9.	Germany	1.69%
10.	Sweden	1.69%

Figure 6 – Report showing visitors per country

The majority of traffic reaches the site via a direct link (44.6%) and organic searches (37.4%). Our biggest referral sources are our social media sites (27.7%), followed by our project partner websites and the World Energy & Meteorological Council website both at 16.8%.

Figure 7 – Charts showing visitors per channel and via which referral

The site received over 3,000-page views during the last seven months, with visitors spending almost two minutes on the page. Unique page views amounted to 2,264.

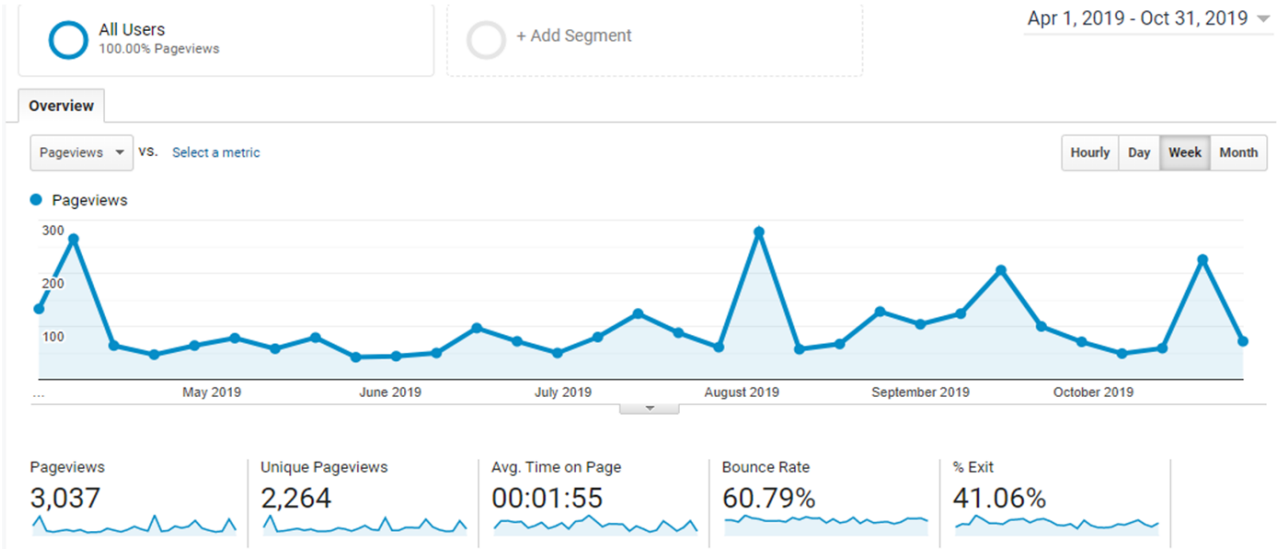

Figure 8 – Report showing unique page views and time on site

The most popular pages visited were the homepage with 30.7% of traffic, followed by the case studies page with 19.2% of traffic and the overall project page at 8.3%.

	Page	Pageviews	Pageviews	Contribution to total: Pageviews
		3,037 % of Total: 100.00% (3,037)	3,037 % of Total: 100.00% (3,037)	
1.	/	933	30.72%	
2.	/case-studies/	585	19.26%	
3.	/project/	253	8.33%	
4.	/news/	143	4.71%	
5.	/events/	134	4.41%	
6.	/team-members/	123	4.05%	
7.	/research/	96	3.16%	
8.	/downloads/	84	2.77%	
9.	/project-partners/	80	2.63%	
10.	/presentations/	72	2.37%	

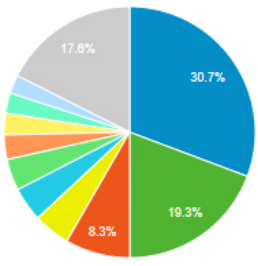

Figure 9 – Report showing most popular pages

5 Additional dissemination channels

Events: the SECLI-FIRM consortium have participated in several industry events at national, EU and international levels, including conferences, exhibitions, workshops and seminars aimed at scientists, policy makers and industry professionals. Participation has taken the form of workshops, side events, panel discussions and poster sessions, promoting the SECLI-FIRM project and the benefits of seasonal forecasting to the energy and water industries.

The main events where SECLI-FIRM participated between April and October 2019 include:

- European Geosciences Union (EGU) General Assembly 2019, Vienna (Apr 2019)
- European Climate Change Adaptation (ECCA) 2019, Lisbon (SECLI-FIRM in collaboration with the Value of Climate Services taskforce) (May 2019)
- The International Conference of Energy & Meteorology 2019, Copenhagen, Denmark (Jun 2019)

Professor Alberto Troccoli also hosted a session introducing the project to our industry partners at the ICEM 2019, and other team members took part in activities across the conference.

Networking: the SECLI-FIRM consortium is continually building their network of contacts, through collaboration with other projects in similar sectors, such as CLARA, S2S4E, CLIM2POWER and MedGold, to share knowledge and key learnings. SECLI-FIRM is contributing to a taskforce focusing on the Value of Climate Services involving other H2020 projects and coordinated by the leader of the CLARA project. This work was also presented at ECCA 2019 in Lisbon (as mentioned above). SECLI-FIRM is also a member of the Climateurope network which brings together other EU funded, seasonal forecasting projects.

Stakeholder communications: internal and external stakeholders who have signed up to the SECLI-FIRM mailing list receive email updates about upcoming events, e.g. the SECLI-FIRM workshops. Project news and updates are also shared via the WEMC newsletter. A standalone newsletter for SECLI-FIRM has also been produced to share more details of the first year's activities.

Videos: In addition to a video summarising the SECLI-FIRM project as well as its aims and basic research principles, the idea of case study-specific videos has been explored. Focusing on Case Study seven to begin with, an initial animated video with clear narration has been created (see SECLI-FIRM's home page http://www.secli-firm.eu/). It tells a simple story of how a company might make cost, safety and efficiency savings with the completed project and resulting data. Depending on the performance of this initial video, further animations showcasing the potential applications of the other eight case studies have been planned.

Social media: the project has its own Twitter and LinkedIn accounts for dissemination of project updates, events, commentary and relevant industry updates from stakeholders and partner organisations. Twitter has been used as the main social media platform, due to it being

a more established platform with a broader audience, giving greater opportunities for interaction and engagement. Posts have centred around the project case studies, the stakeholder workshops and have begun to explore the wider applications of the case studies results. Live tweets focused on the attendance at events and workshops have gained excellent interaction. And impressions have increased too – compared the same time period in 2018, the tweets posted in April-October 2019 have 10,000 more impressions overall.

Branded materials: a suite of SECLI-FIRM branded materials has been developed to create a strong and recognisable visual identity for the project. Examples of these have been included throughout this report. We also have branded conference collateral including a pull-up banner, lanyards and stationery items for promoting the project at events.

Project reports: all relevant project deliverables in report format and defined as public will be published on the SECLI-FIRM website for open access.

Official EU communication channels: we regularly assess opportunities for information about project milestones to be forwarded to the relevant EU dissemination portals, including Cordis Wire (http://cordis.europa.eu/wire/) and other EU channels including:

- Horizon magazine
- Research-EU focus magazine
- European Commission's Research & Innovation events listings

6 Summary

During the first year of the project, activity has focused on building relationships. Since March, this has continued with further attendance of industry events and through relevant workshops. However, demonstrating the benefits of the project through alternate channels, as described above, has become a focus as well.

As interest in the project has grown, so has the dissemination of the benefits to aid in future exploitation opportunities. Work continues to prepare for this exploitation stage with the development of further videos to showcase the benefits of each of the other eight case studies. Conversations and preparations have also been made around a calendar of webinars to further expand the awareness and the potential applications of the project with industry stakeholders.

Key measurable targets for continuing this stage of the project will be to:

- Increase attendance at stakeholder activities;
- Continue to build engagement via Twitter and LinkedIn;
- Create more interaction with stakeholders, via networking and events;
- Drive more website traffic and increase the number of repeat visitors to the site;
- Grow the SECLI-FIRM mailing list to increase opportunities to engage via email.

The Added Value of Seasonal Climate Forecasting for Integrated Risk Management (SECLI-FIRM)

For more information visit

www.secli-firm.eu

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Grant Agreement n. 776868