


Workshop 2 Report

21 and 22 November – Innsbruck



EO Best Practice – Agro-Insurance

D2.3

14 February 2020

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European Space Agency (ESA)

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D2.3 Workshop 2 Report

Prepared for:
European Space Agency
Largo Galileo Galilei 1
Casella Postale 64
00044 Frascati
Italy

Prepared by:
GeoVille

In association with:
Vito
CGI

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Authors:	Michaela Seewald (GeoVille)	
Reviewer	CGI, VITO	
Approval	Ralf Ryter (GeoVille)	
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Acronyms and Abbreviations

EARSC	European Association of Remote Sensing Companies
EO	Earth Observation
EO4I	Earth Observation for Agro-Insurance
ESA	European Space Agency
ASV	Austrian Hail Insurance, Swiss Hail Insurance and Vereinigte Hail Insurance

1 Introduction

ESA's Earth Observation Best Practice for Agro-Insurance (EO4I) project is characterized by a high user engagement, starting with the first workshop at the ESA Living Planet Symposium in Milan in May 2019; an online survey with more than 50 participants including insurance, re-insurance and brokers was conducted; furthermore, the first round of user meetings with the three key users from Austrian Hail Insurance, Swiss Hail Insurance and Vereinigte Hail Insurance as well as a wrap-up session were already performed.

On 21 and 22 November 23 representatives of global First- and Re-Insurances, ESA and EARSC met at GeoVille in Innsbruck to go the next step towards a better understanding of the geoinformation requirements with the aim to discuss current and future EO capabilities. This is already the second large scale user workshop in the frame of ESA's EO4I project that started in spring 2019.

The workshop brought together key experts from the agro-insurance as well as the EO industry and was extended to two days. The intention was to discuss the challenges and fitting Earth observation solutions for the sector. Participants from Austria, Germany, Italy and Switzerland used this workshop to discuss their challenges in daily business life to get a better understanding within the Agro-Insurance and Earth Observation sector.

The opportunity was used to consolidate all previous meetings and get into more depth with the key users from the ASV group (Austrian Hail Insurance, Swiss Hail Insurance and Vereinigte Hail Insurance), all project partners as well as a member of ESA. On the second day, the forum was expanded and representatives of re-insurances attended the workshop as well. This report documents the main discussions and findings of the workshop.

2 General information

2.1 Expanding the view

Starting with the already developed requirements as a basis for the discussions, the objective of the workshop was to get more into depth of the already conducted user engagement tasks and to broaden the view beyond the already derived information. Then, these requirements were matched with current EO capabilities. As a next step, a preview on the service platform was given where available EO products can be viewed by insurances to get first insights on how these may be used. Their feedback allows in a next step to adapt current capabilities and services specifically to agro-insurance’s needs.

Participants from various first and re-insurances gave insights into the challenges of their daily business life. So far, the various user engagement activities were focused on challenges with relation to EO capabilities. For the workshop, the view was expanded to consider further challenges not related to EO at first sight but which might be addressed by current or future EO capabilities. The next step will be to translate challenges to technical requirements and to connect those with current and possible future EO capabilities (see Figure 1: Expanding the view (Source: GeoVille). Figure 1).

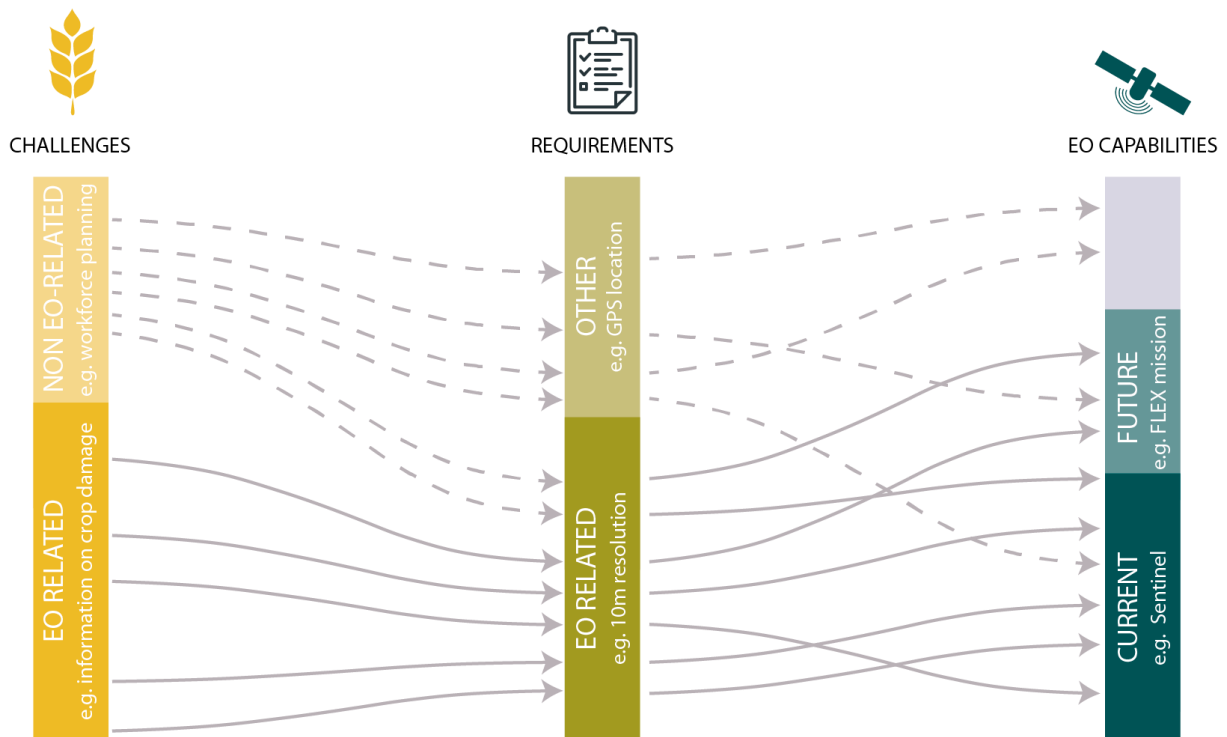


Figure 1: Expanding the view (Source: GeoVille).

2.2 Workshop – day 1

Organizers:

- Ralf Ryter (GeoVille)
- Eva Haas (GeoVille)
- Michaela Seewald (GeoVille)

Team:

- Yan Shynkarenko (GeoVille)
- Phillip Harwood (CGI Italy)
- Ron Valk (CGI Netherlands)
- Roel van Hoolst (VITO)
- Sven Gilliams (VITO)

Participants:

- Itziar Alonso (ESA)
- Nikolaus Neugebauer (Österreichische Hagelversicherung)
- Tiziana Speckert (Schweizer Hagel)
- Ingrid Nöhles (Vereinigte Hagelversicherung)
- Janusz Pavel (Vereinigte Hagelversicherung)

Programme:

Programme	
14:00 – 14:15	Welcome & introduction
14:15 – 15:15	Consolidation of identified key geoinformation requirements Ralf Ryter, GeoVille
15:15 – 16:15	Presentation of fitting Earth Observation capabilities GeoVille & VITO
16:15 – 16:30	Coffee break
16:30 – 18:00	From requirements to solutions: Identification of potential insurance products Ron Valk, CGI & Yan Shynkarenko, GeoVille
19:00	Project Dinner

2.3 Workshop – day 2

Organizers:

- Ralf Ryter (GeoVille)
- Eva Haas (GeoVille)
- Michaela Seewald (GeoVille)

Team:

- Yan Shynkarenko (GeoVille)
- Phillip Harwood (CGI Italy)
- Ron Valk (CGI Netherlands)
- Roel van Hoolst (VITO)
- Sven Gilliams (VITO)

Participants:

- Itziar Alonso (ESA)
- Ola Grabak (ESA)
- Nikolaus Neugebauer (Österreichische Hagelversicherung)
- Tiziana Speckert (Schweizer Hagel)
- Ingrid Nöhles (Vereinigte Hagelversicherung)
- Janusz Pavel (Vereinigte Hagelversicherung)
- Alessandro Bellini (Vereinigte Hagelversicherung)
- Mace IStäheli (Allianz Re)
- Eduard Buckel (Bayerischer Versicherungsverband)
- Emmanuel Pajot (EARSC)
- Lena Neidhardt (Genillard & Co. GmbH)
- Andreas Rohm (Munich RE)
- Maximilian Strobl (Munich RE)
- Sarah Conradt (SCOR)
- Paul Hammer (Swiss Re)

Programme:**Programme**

09:00 – 10:30	Registration & welcome at Wirtschaftskammer Tirol, room M019
10:30 – 11:00	EO industry activities for the Agro-Insurance industry EARSC
11:00 – 12:00	Geo-information requirements of the Agro-Insurance sector VITO & GeoVille
12:00 – 13:30	Lunch break
13:30 – 14:30	EO capabilities for the Agro-Insurance sector & EO4I portal GeoVille & VITO
14:30 – 15:30	Presentation of the service portal CGI
15:30 – 16:00	Coffee break
16:00 – 17:00	Round Table with participants

3 Workshop – Day 1

The workshop dedicated to requirements of ASV members started with a roundup of all previous user meetings, workshops and surveys that have been conducted so far. Based on these key findings, the challenges of agro-insurance sector were discussed on the basis of potential products as well as the insurance’s business processes.

Before the workshop, four themes were defined to help identify what the different insurance’s challenges and needs are relevant for. Those four themes are (1) acceptance, (2) risk prevention, (3) damage assessment and (4) fraud detection; see also Figure 2. These themes serve as a starting point to connect the identified geoinformation needs with the business processes of agro-insurances. They identify a special process in the agro-insurance’s daily business life and connect it with how EO can help in this matter.

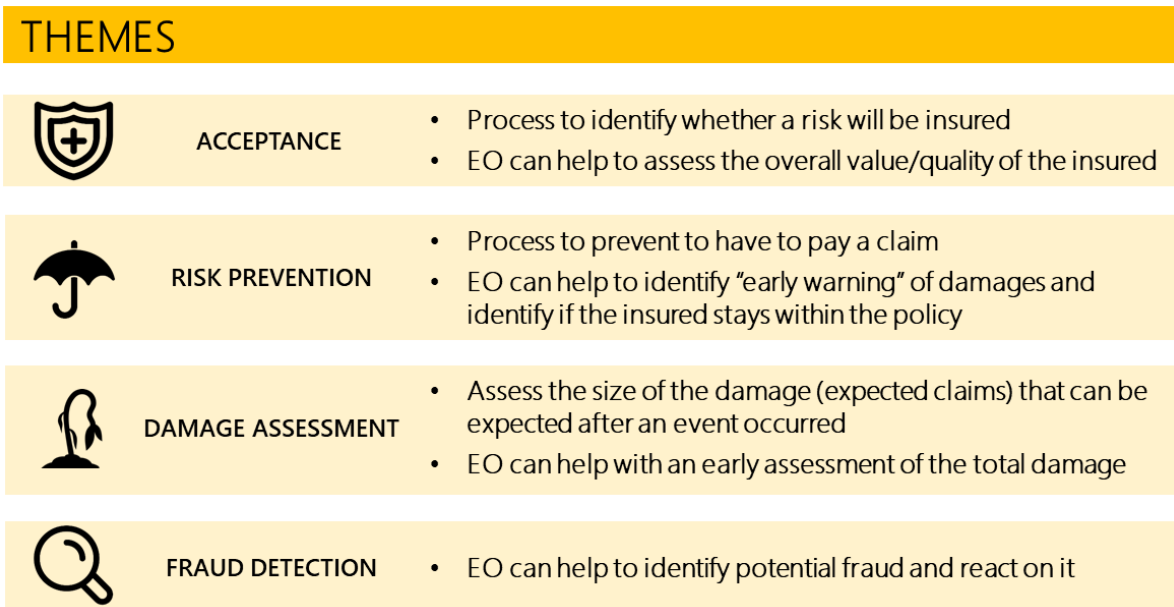


Figure 2: Themes to define insurance’s challenges and needs.

So far, the key challenges defined by the already conducted user meetings, can be seen in Figure 3.

Challenges within insurance product cycle

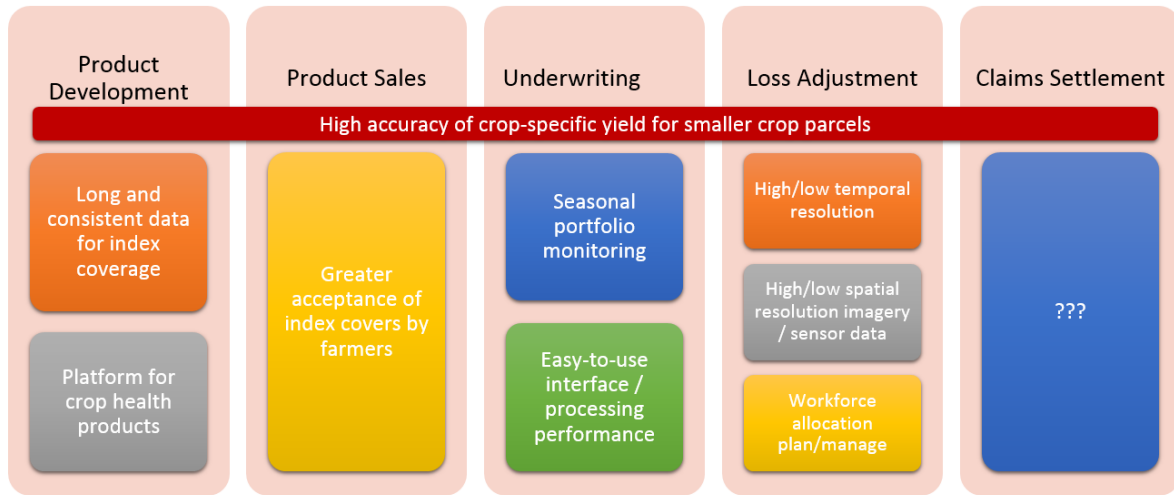


Figure 3: Challenges within the insurance product cycle – the starting point of the discussions.

Looking at the product development, market analytics is a key challenge for insurances. When going into new markets, a portfolio with all relevant details is needed. When expanding the business into a new area is understood a detailed country portfolio is needed with information on the current status but also with a historical background of up to five years.

The availability of time series was named as a big challenge by all key users. There is a high need for time series up to 10 or even 15 years – the more the better. It however depends also on the risk that should be modelled. In terms of vegetation monitoring, as an example, it was mentioned that MODIS was still used – despite the coarse resolution – due to availability of long time series. Time series are required for several insurance products: Index-based insurance is a growing sector now, however, time series are often too short for developing precise indices. Time series are also relevant in terms of crop type detection to identify potential areas to be cautious about.

It was noted, that Premium Calculation, which is part of the product development process, should also be kept in mind. Premium Calculation is preceded by the calculation of the pure risk price, followed by the application of loadings, meaning the admin costs, loss adjustment, reinsurance, ambiguity and CAT loadings).

4 Workshop – Day 2

The second workshop day started with a presentation of the European Association of Remote Sensing Companies (EARSC) showing activities of the Earth Observation industry supporting the agricultural sector. This was followed by a short project introduction and a summary of the key findings so far. Based on the already identified challenges and requirements, further key challenges were discussed.

As already identified on the first workshop day, the Re-insurances confirmed the need for long and continuous time series, up to 10 or even 20 years depending on the product. They are needed for product development and for all products with a price tag. For loss adjustment, no time history is needed, but a continuous, regular monitoring.

To build index products, which is a growing sector, a regularly available standardized layer on a global basis (especiall for re-insurances) is needed, based on higher resolution satellite imagery such as Sentinel 1 and 2. As most of the participants already work with satellite imagery in their company, they identified some challenges with it. The availability of imagery needs to be on a regular basis, a standard interval of every 10 to 15 days would be required. Furthermore, the unevenness of the coverage of Sentinel 1 imagery is challenging for them.

Generally, the main limitation of satellite imagery is the acquisition. It takes quite a long time to obtain historical data. There should be a quick and easy way to access this data, for example via a platform or other applications. Right now, existing platforms such as Sentinelhub, Google Earth Engine or Snap are used. However, the usability of existing exploration platforms is not sufficient for the insurance's needs.

As already mentioned, insurances are already working with satellite data themselves. However, producing the data – on which a claim may be built on – on their own brings them into a conflict of interest as the claimant wouldn't trust this data. Here, independent third parties such as ESA or other satellite product and services provider are required.

In terms of using imagery and platforms, right now restrictions from a technical and IT side exist. It would be helpful to know what infrastructure is needed and further technical requirements as well as to have a good documentation and a (technical) user support to handle the data easier.

Insurance Product (Business) Processes

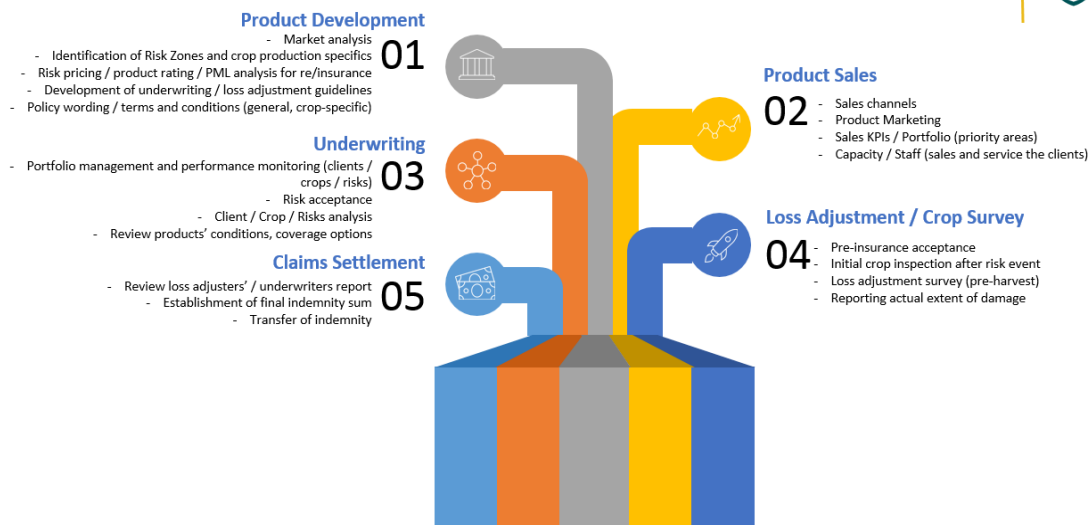


Figure 4: Insurance Product (Business) Processes.

Figure 4 shows an overview of the relevant business processes of agro-insurances. On the basis of this, further challenges were identified and discussed in a round table. As for product development, the availability and temporal and spatial resolution of satellite imagery was mentioned as a challenge again – longer time series was mentioned as required. As some products need a spatial resolution on intra-field level higher resolution data in a consistent way is required. Also, a temporal resolution of 2-4 days was mentioned; however, this is depending on which product it is needed for. There is also a need for the use of more radar or passive microwave imagery to compensate for cloud coverage.

5 Conclusion

During the two workshop days a list of challenges agro-insurances (first and re-insurances) face in their daily business life were identified. Mentioned by both the First and Re-insurances and relevant for various business processes is the need for long time series with historical archive data available and a continuous monitoring on a regular basis. A quick and easy way to obtain this data is needed furthermore, right now the usability of existing platforms is not sufficient for the needs of the insurances.

The participants of the workshop agreed that receiving data and products or services from a third party is required. The insurances are working with satellite imagery themselves. However, this causes a conflict of interest as claims might be settled on this data. In such business processes, data from an independent party is helpful.

Technical as well as thematic aspects were discussed. The thematic needs are for example field boundary delineation, crop damage assessment or yield estimation. These are discussed in more depth in the Deliverable D1.2 Geo-information Requirements Reports. This report focused mainly on the technical needs.

As shown in the EO Capabilities sessions on both workshop days, some of those thematic and technical requirements can be met and are ready right now. However, some of them are not feasible with current EO capabilities or only partly fit the agro-insurance's needs at the moment. The Deliverable D2.2 Current EO Capabilities Report focuses on available EO products and services. In a further step, the agro-insurances requirements will be compared to EO capabilities in the Gap Analysis Report to give an interesting outlook on where the EO sector needs to evolve.

ANNEX 1: Pictures

