EUMETSAT-ESSL Testbeds and Workshops for MTG User Preparation

European Severe Storms Laboratory

Alois M. Holzer
Pieter Groenemeijer
Tomáš Púčik
Stephan Bojinski
Nataša Strelec-Mahović

European Severe Storms Laboratory

The EUMETSAT-ESSL Testbed 2022

Testing of novel MTG products (FCI, LI and IRS)

combined with intense real-time training of forecasters

- In the year 2022: 3 weeks with forecaster testbeds at the ESSL Research and Training Centre in Wiener Neustadt, Austria
- 45 participants from 18 different countries:
  BG, HR, FI, DE, HU, PL, PT, RO, SK,
  UK, IT, AT, GR, EE, LT, ES, CZ, DK

Group photo of the first EUMETSAT-ESSL Testbed week in June 2022

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The EUMETSAT-ESSL Testbed 2022

In plenary

- Testbed introduction
- Expert talks
- Discussion on product evaluations
- Daily weather briefing
- Daily verification session

In small breakout groups

- Daily forecasting
- Daily nowcasting
- Realistic time pressure
- Full range of data sources
- Evaluation of forecast and nowcast supporting tools

The EUMETSAT-ESSL Testbed 2022

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In plenary

In small breakout groups

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Updates on the MTG status presented to the forecasters

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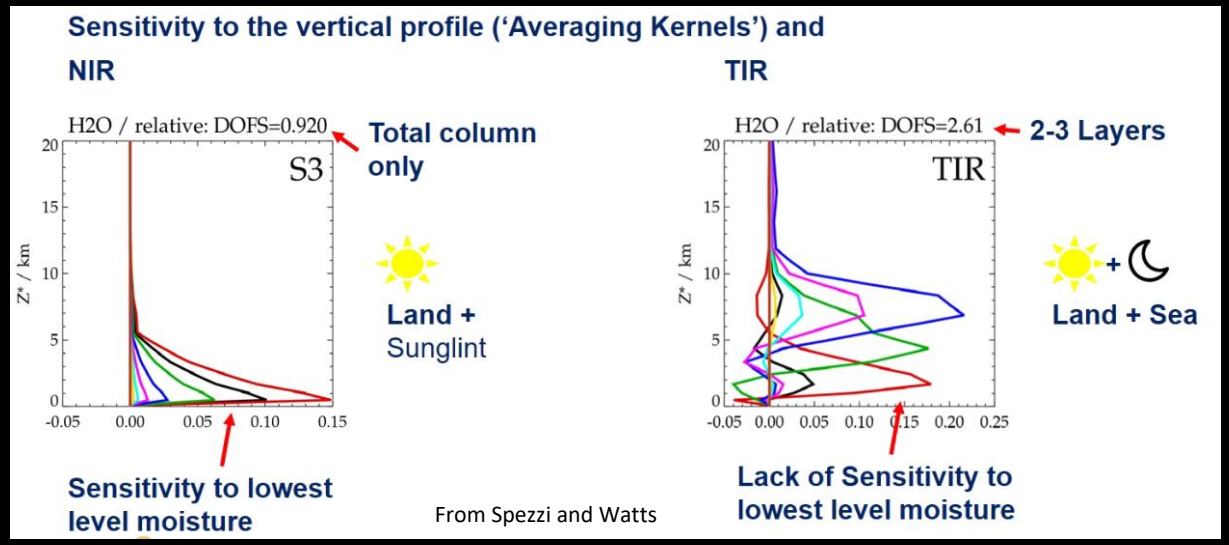
In the focus last year

Experimental proxy product for MTG

- Low level moisture



Retrievals of moisture using Near Infra Red (NIR) and visible (VIS) channels near 0.91 µm and 0.86 µm (proxy, but soon FCI data).

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The EUMETSAT-ESSL Testbed 2022

In the focus last year

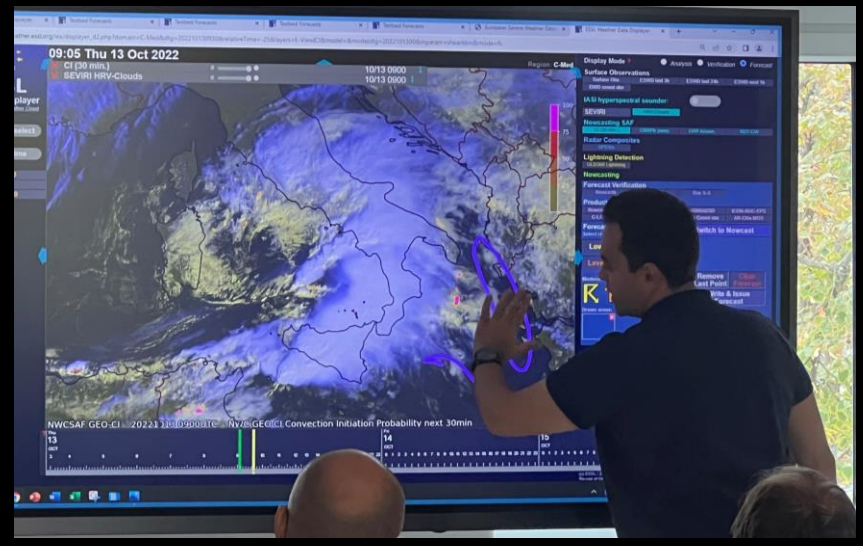
Experimental proxy product for MTG

- Low level moisture

Retrievals of moisture using Near Infra Red (NIR) and visible (VIS) channels useful for forecasters in operational forecasting practice.

NWC SAF products

- Convective Initiation
- Rapidly developing thunderstorms
- Convective rain rate



Expert Workshops

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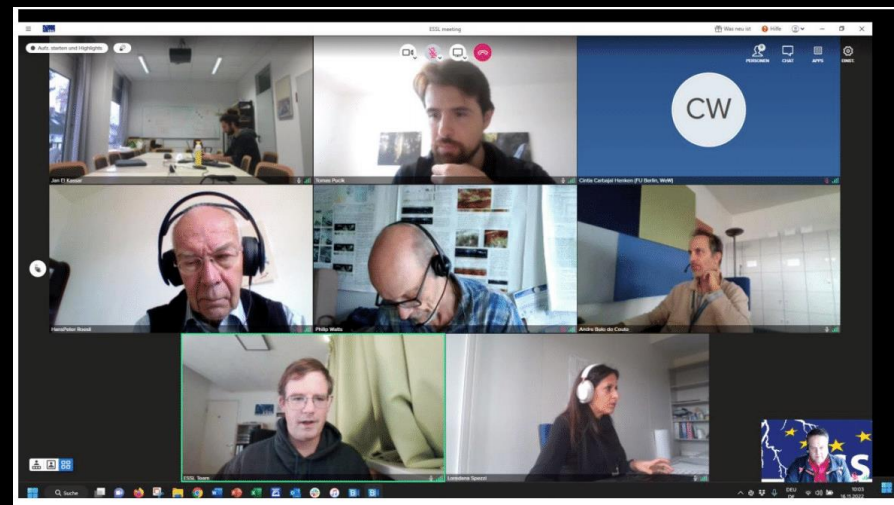
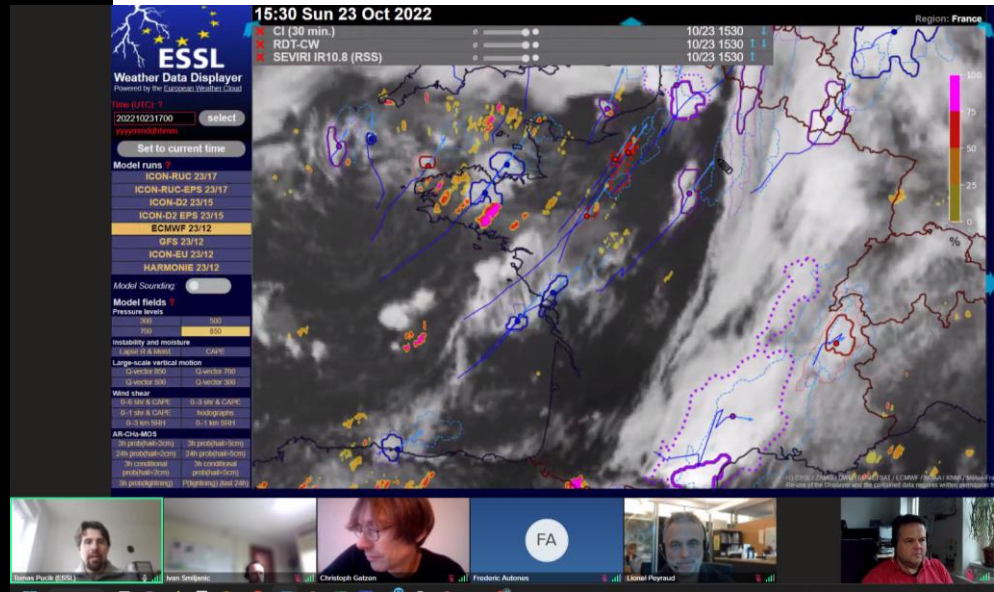
4 workshops in hybrid mode in 2022

Contents:

1. Low level moisture
2. Convective initiation and mature storms
3. Low level moisture with
   Testbed feedback taken into account
4. NWC SAF products including
   Testbed feedback, active
   forecaster participation





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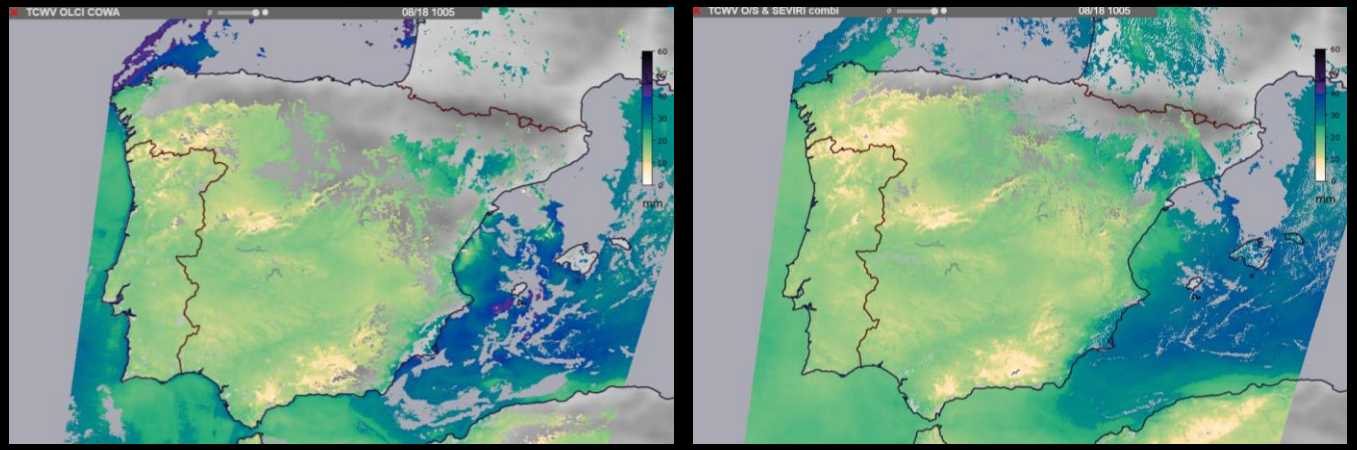
Expert Workshops

Low level moisture

MTG proxy data

Case of 18 August 2022



Comparison between OLCI COWA (left) and OLCI SLSTR (right)

OLCI SLSTR provided a smoother picture of low-level moisture distribution over the sea, more data coverage - i.e. less masking from clouds, and smoother transition between land and see than COWA method.

Forecaster assessment:

- substantial nowcasting potential seen in such a product from MTG
- both as stand-alone product (loop!) and comparison with model values

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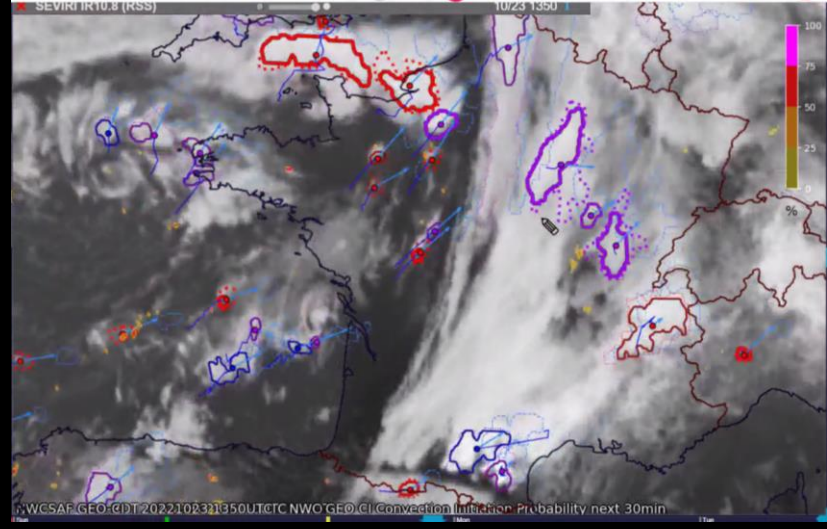
NWC SAF products

- ❑ Discussion on added value for manual nowcasting
- ❑ Important to assume realistic user needs during warning operations
- ❑ Low forecaster usability of some NWC SAF products under such assumptions



Forecaster see biggest future potential in the following aspects of NWC SAF products:

Convective Rain Rate product

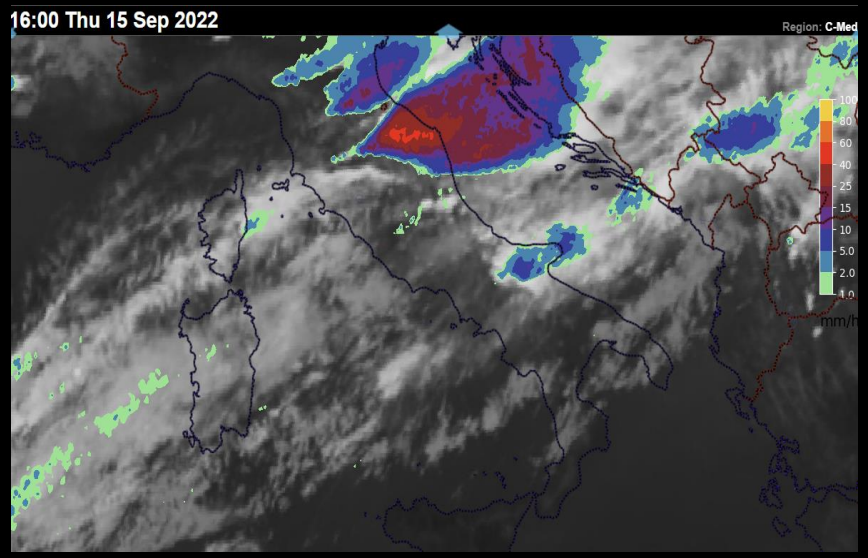
- for rough estimate of accumulated convective precipitation (daytime)
- for identification of active cells and cell tracking

Convective Initiation product

- during daytime (high FAR during dusk, dawn, and nighttime)

RDT-CW product … led to proposal on future „forecaster friendly RDAT product“

- Storm top texture identification (overshooting tops, AACP, …)
- Minimum temperature trends
- Lightning trends (new possibilities with LI!)



CRRPh 1 h precipitation accumulation on 15 September 2022 from 15:00 to 16:00 as displayed in the testbed displayer of the EUMETSAT-ESSL Testbed 2022 (deadly flooding in Italy)

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EUMETSAT-ESSL Testbed 2022 Workaday Feedback

- High return rate: more than 50 % of testbed participants (24 out of 45)
- Online survey 6 to 9 months after the testbed, i.e. in real workaday situation - long time after the event
- In addition, qualitative online interviews

Is there a lasting positive effect resulting from the testbeds?

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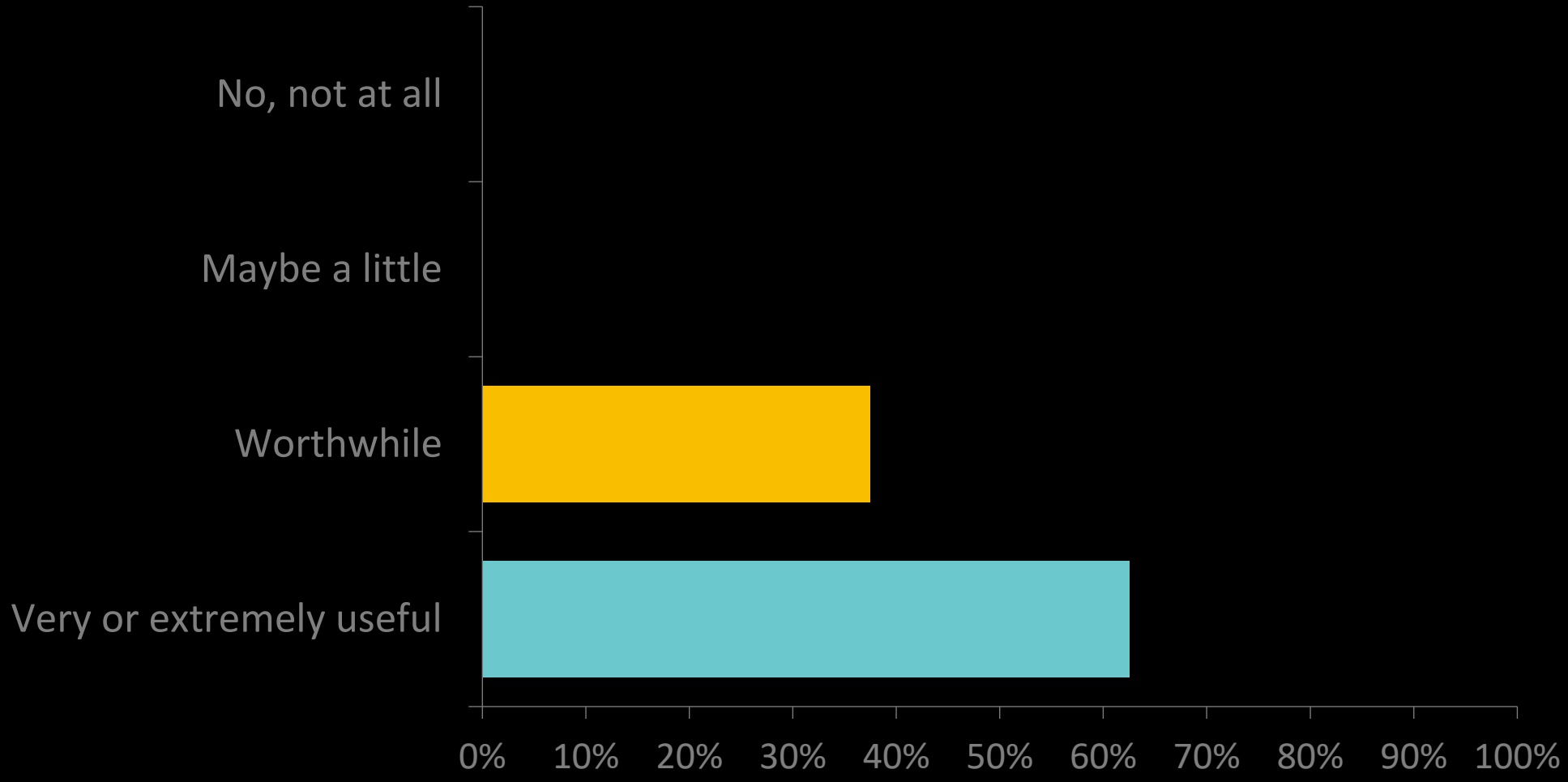
Q1: Looking back some months after your testbed participation, do you feel this has been a useful activity and experience?



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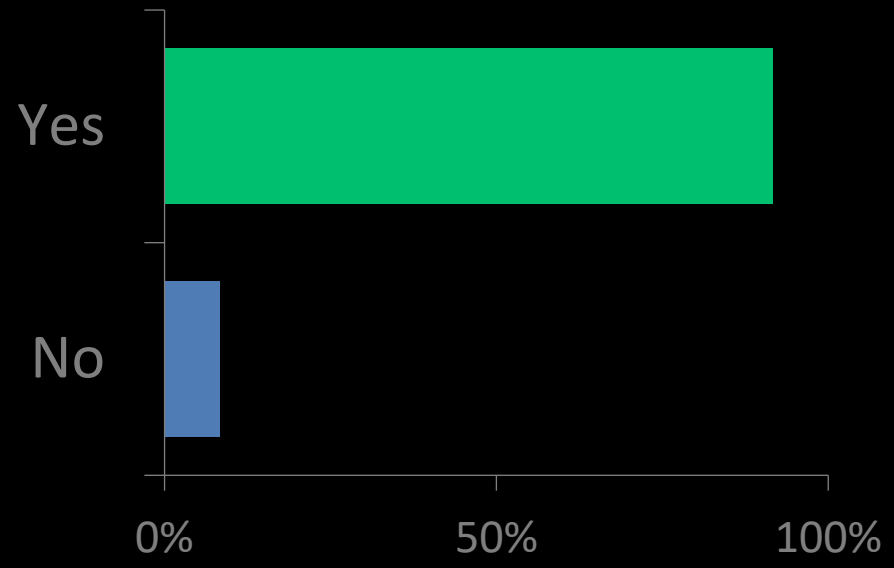
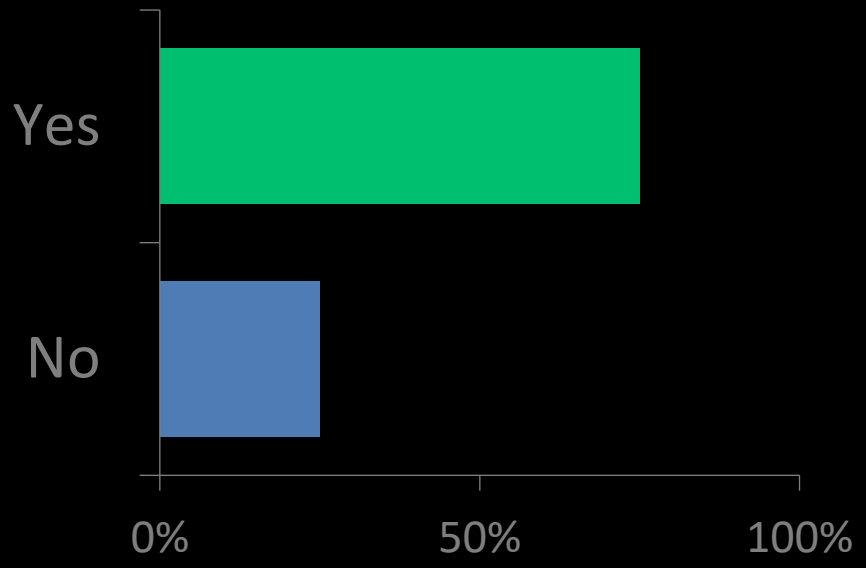
Q2: Did the storm forecasting, as it is done in the EUMETSAT-ESSL Testbed, change the way you do this in your everyday work?



Q3: Did the knowledge you gained at the testbed help you in a real forecast situation of the past months?



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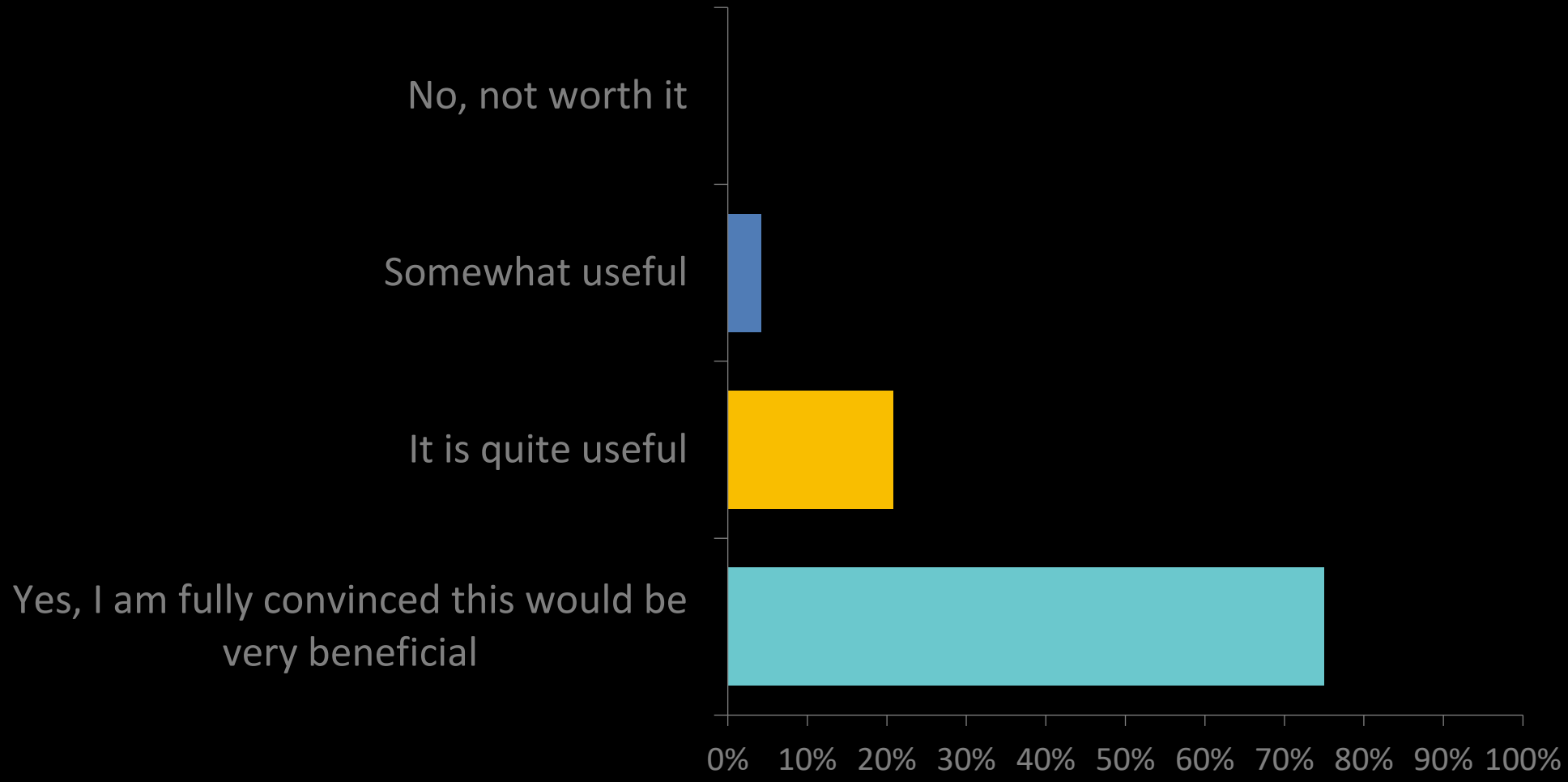
Q6: Would you suggest colleagues to come to the EUMETSAT-ESSL Testbed and learn more about the newly available satellite products?



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Outlook to the EUMETSAT-ESSL Testbed 2023

- Fully booked already.
  4 weeks of forecaster testbeds (+1 compared to 2022)
- 2 weeks in autumn to best cover the activity over the Mediterranean region.
- Completing preparations for shift from proxy data to real MTG data, including the LI.
- Proxy data visualized for hyperspectral infra red sounder (to be launched in 2024).

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Contact

alois.holzer@essl.org

www.essl.org