

IRS MAG Action M5.A10

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with inputs from RSP and USC teams*



M5.A10: To establish which NWP centres envisage to assimilate retrievals for regional/convection resolving NWP

Background

- **Question raised to SWG in 2014**, Action SWG-36.3: "SWG delegates to respond to the question on which NWP centres envisage to assimilate retrieved profiles for regional or convective scale NWP and to provide a contact point from their centres."
 - ➔ SWG-37 review of actions only states "Comments have been received (Met Office)"
 - ➔ "The **Met Office** currently **have no plans** to assimilate retrieved T and q profiles from MTG-IRS for regional or convective-scale NWP.", *P. Francis as PoC.*
- Survey conducted **in 2016** by the User Services on the usage of Metop and EARS data with the NMHSs of EUM Member States.
- Early 2019, further consultation of NMHSs who had indicated in the former survey that they were using Metop and EARS data for regional NWP purposes.
 - ***Identify actual interested users of IRS L2 products (T/q profiles) for operational assimilation in regional model, and by which horizon: e.g. operational at Day-1, or as exploratory road beyond MTG launch***

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2016 survey in Members States

- Action 15/37/18 from the 37th STG-OPSWG Meeting:
'The Secretariat to consider the introduction of a control mechanism to check at regular intervals the continued user need for data streams disseminated via the EUMETCast satellite service.'
 - Action 37.5 from the 37th STG-SWG Meeting:
'The Secretariat to plan and conduct a user survey on the use of products.'
- usage of Metop Global Data and EARS Regional Services

Answers were received from the following 18 countries:

Belgium	France	Netherlands
Czech Republic	Germany	Norway
Denmark	Hungary	Spain
ECMWF	Iceland	Sweden
Estonia	Italy	Switzerland
Finland	Latvia	United Kingdom

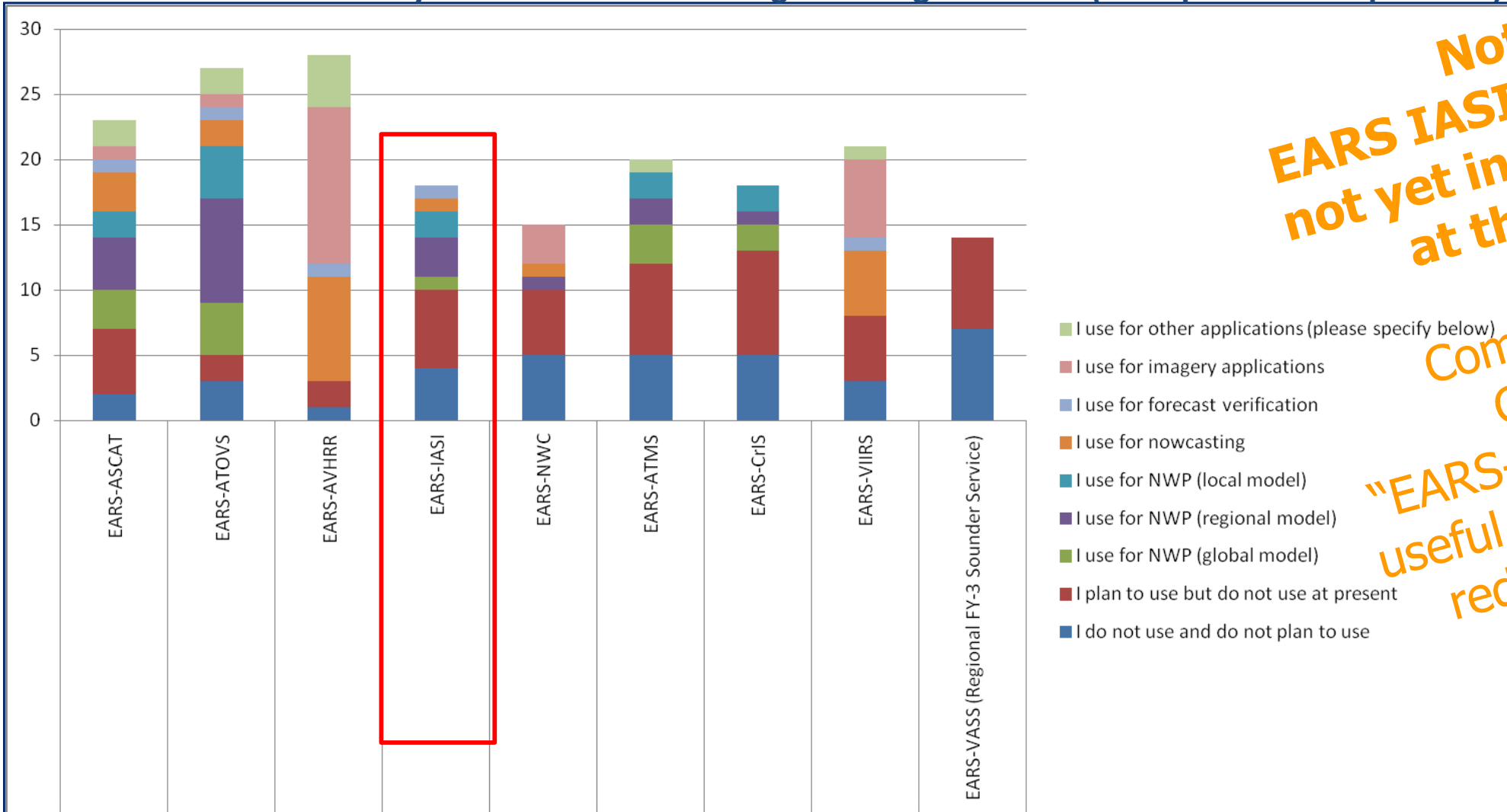
2016 survey on the use of global products in NMHS

Please indicate your use of the following Metop global data from EUMETSAT Central Facility (multiple answers possible).



2016 survey on the use of regional products in NMHS

Please indicate your use of the following EARS regional data (multiple answers possible).



Note:
EARS IASI L2 service
not yet in pilot phase
at that time

Comment from
Germany:
"EARS-IASI profiles are
useful for nowcasting to
reduce timeliness."

2019 follow-up survey on use of EUM products for regional applications

- The 8 NMHSs who answered in 2016 and indicated use for regional NWP were prompted again
- **Focus on assimilation of EUM products in regional NWP**
- **Answers from Estonia, Finland, Hungary, Italy, Netherlands, Norway, Spain, Sweden**

Country	Currently in use	Planning to use in next 5 years	Comments
Estonia	No IASI	No IASI	-
Finland	EARS-IASI (L1? TBC) used in collaboration with MetNo and SHMI	-	-
Hungary	IASI radiances subset	-	
Italy	IASI L2 T/q/Ts		

2019 follow-up survey on use of EUM products for regional applications

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Country	Currently in use	Planning to use in next 5years	Comments
Netherlands	IASI (L1 or L2 TBC) assimilation not mature	IASI L1 PCC IASI L2 T/q + error products	When MTG-S provides data, there will be a preference for the IRS. But numerous hurdles have to be taken to enable the MTG-S assimilation.
Norway	IASI L1 radiances Metop Polar winds	-	-
Spain	No IR sounders	EARS-IASI (L1 or L2? TBC)	-
Sweden	IASI (L1 assumed)	Winds, IASI (L1 or L2 TBC)	-

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Summary

- Overall, little to no operational assimilation of retrievals from hyperspectral sounder in regional NWP.
- Few plans exist, with limited readiness/perspectives for operations so far
- Radiances is still the overall baseline where sounder data assimilation is in place or planned
- At Day-1, L2 sounding products more likely to be directly used as profiles to support forecaster work.

New since initial survey:

- ✓ EARS-IASI L2 in pilot phase since November 2017, user awareness growing
- ✓ Studies on-going to use the profiles directly and via their assimilation in NWP models (ECMWF and M-F)
- Exploratory work starting with transformed state vectors (fellowship in UKMO)

Next steps:

- Monitor progresses of studying retrievals in NWP and their operational potential for some NWP centres
- User Services to conduct broader consultation, both in targeted audience and scope of the survey (e.g. including potential direct use of L2 products for forecasting), in particular as part of MTG User preparation (e.g. MTG-Up...)

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Questions, Comments?

Thank you!