GloFAS Annual Survey 2021

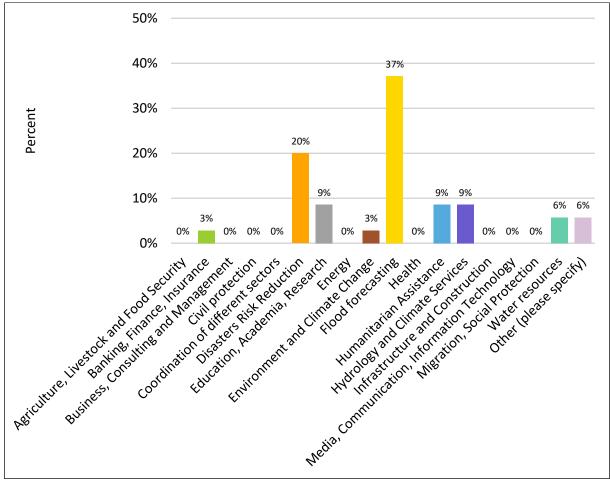
Introduction

At the beginning of 2022 the CEMS Hydrological Forecast Centre – Dissemination and Analytics launched the <u>first GloFAS annual survey</u>, which was supported by the Joint Research Centre as well as the CEMS Hydrological Forecast Centre – Computation.

The intention of the survey is to learn more about the user satisfaction and to identify areas of improvement to assure that future developments follow the needs of the user community. The invitation to the survey was distributed through a pop-up GloFAS website, the CEMS Twitter channel as well as several emails targeted to various actors in the water sector. The survey focussed on the GloFAS performance of 2021 and was executed through an online survey tool called Questback.

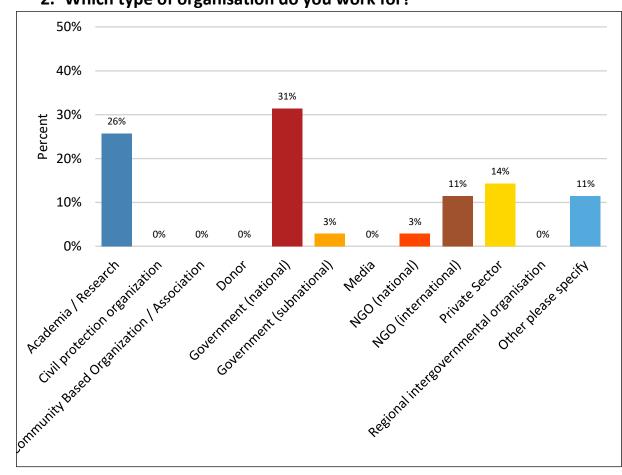
A total of 35 responses were received, and their answers are presented and analysed in this report.

Survey responses



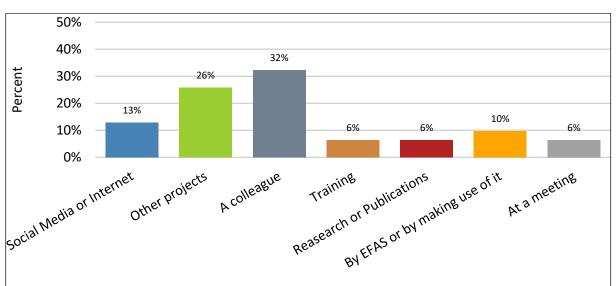
1. Which sector represents best your area of work?

More than half of the GloFAS survey participants came jointly from the sectors *Floods forecasting* (37%) and *Disasters Risks Reduction* (20%). A quarter of participants came from the *Humanitarian Assistance, Hydrology and Climate Services,* and *Education, Academia and Research* with 9% each. While the remaining 16% spread over *Water resources, Banking/Finance/Insurance, Environment and Climate Change* and others.



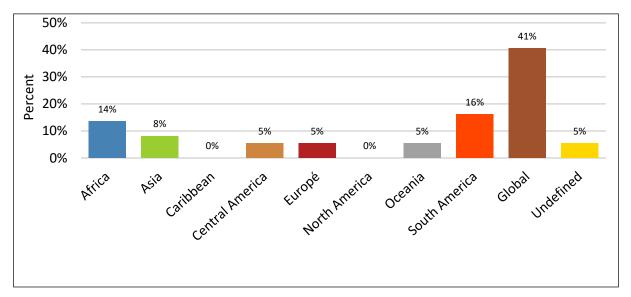


About 34% of the survey participants work within Governmental organizations while another 14% work in non-government organizations (NGO). 14% work within the private sector and another 26% work within academia or research. Other types of organization represent only 11%.



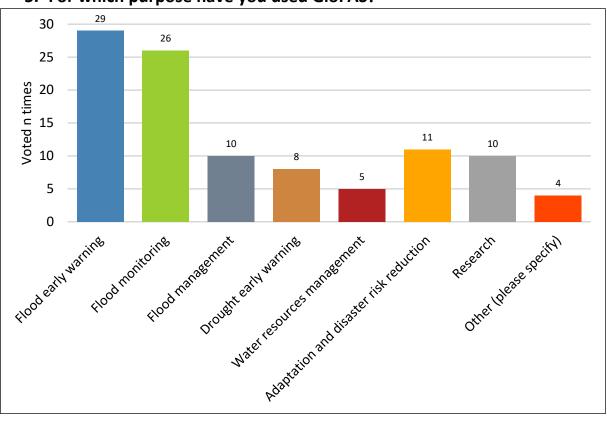
3. How did you first hear about GloFAS?

The most commonly the survey participants hear about GloFAS through a *colleague* (32%), *other projects* (26%) and *social media or internet* (13%). While less common were through making use of EFAS (10%), trainings (6%), research or publications (6%) or at a meeting (6%).



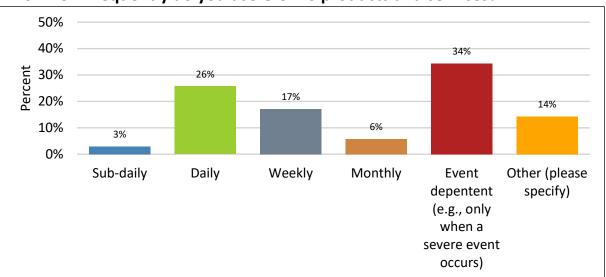
4. For which geographical domain do you use GloFAS?

41% of the survey participants use GloFAS on the global domain. While on a continental level, GloFAS is mostly used for South America (16%) and Africa (14%).



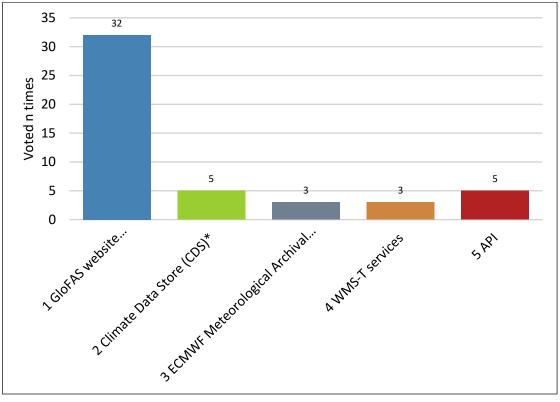
5. For which purpose have you used GloFAS?

Survey participants use GloFAS most frequently for *floods early warning* and *flood monitoring* (29 and 26 votes respectively). But GloFAS is also used in other fields such as *adaptation and disaster risk reduction* (11 votes), *flood management* and *research* (each with 10 votes), *drought early warning* (8 votes) and *water resources management* (5 votes). Additionally, participants included other applications not listed in the survey: teaching, disaster risk financing, soil moisture and snow monitoring, and as an alerting system for ADAM floods (ADAM: Automatic Disaster Analysis & Mapping – World Food Programme).



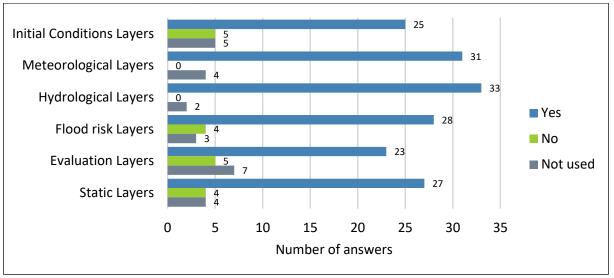
6. How frequently do you use GloFAS products and services?

26% of survey participants use the GloFAS products and services on a daily basis, 17% on a weekly basis and 6% on a monthly basis. While one third of survey participants use GloFAS only during severe events. Survey participants who responded *Other* (14% of the participants – 5 votes) said they also use GloFAS: seasonally (e.g. daily during monsoon season), occasionally (e.g. during duty) or with several frequencies depending on their needs (at times sub-daily, daily or weekly).



7. Which is your most preferred channel to access GloFAS products?

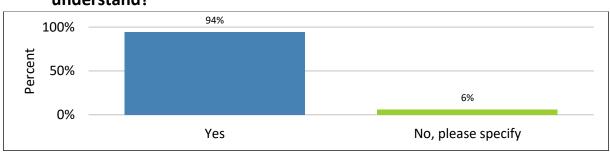
By far the most preferred channel to access GloFAS products is the GloFAS website (<u>www.globalfloods.eu</u>) itself (voted 32 times), while other more specialised data access facilities such as CDS, API, MARS and WMS-T seem to be used less.



8. Do you think GloFAS provides adequate information for you to understand the layers?

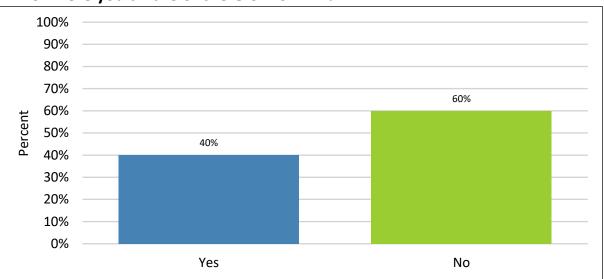
Between all the layers, 90% of the survey participants think the GloFAS layers provide adequate information to understand them (this value was calculated excluding those survey participants who haven't used specific layers). For example, 28 (88%) out of 32 survey participants who have used the flood risk layers indicate that the information provided are adequate for understanding those layers, while 4 participants (12%) do not agree with that. The initial conditions and the evaluation layers were those with the highest percentages as difficult to understand by the survey participants who have used them (17% and 18% respectively).

Out of all layer groups, the *evaluation layers* are used (relatively speaking) the least, which is most likely linked to the fact that those layers are the most recent ones and the awareness and training efforts are still ongoing.



9. Is the functionality on the GloFAS website intuitive and easy to understand?

About 94% of the survey participants think the functionality on the GloFAS website is intuitive and easy to understand. The other 6% think that the website content is too technical and difficult to understand to the end users. One survey participant thinks that allowing layers downloading could help for better understanding of GloFAS website and its content.

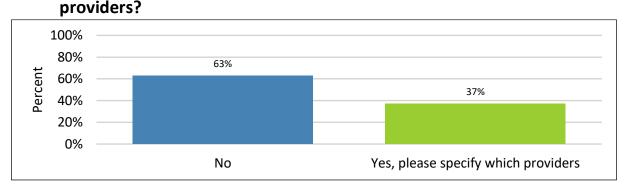


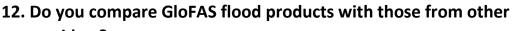
10. Were you aware of the GloFAS Wiki?

60% of survey participants are not aware about the GloFAS wiki pages (https://confluence.ecmwf.int/display/COPSRV/GloFAS+services), which contain a wealth of technical and service information about GloFAS, explaining everything from the different products, over the different model versions, to the variety of different data access facilities. The fact the GloFAS wiki is unknown to the majority of survey participants suggests that those need to be advertised more among under the GloFAS user community.

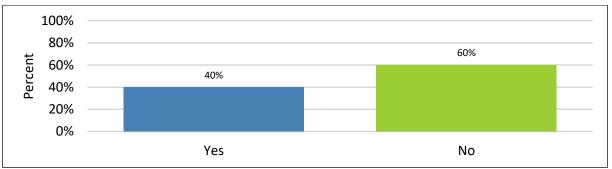
11.On which topics would you like to receive further information or clarifications in the GloFAS Wiki? (open question)

- Future developments for GloFAS.
- More information about GloFAS hydrological models.
- Possibilities of data download in several formats and in different programming languages.
- More information about forecast evaluation and flood risk assessment.



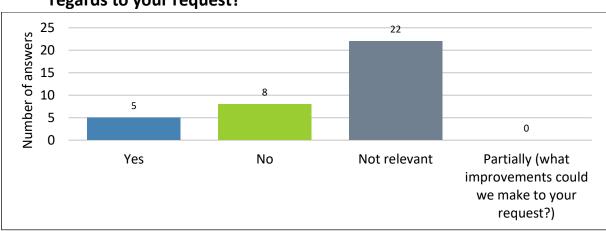


While almost two third of the survey participants rely entirely on GloFAS, a larger third compare GloFAS flood products to those of other providers such as: National forecasts, EFAS, WW-HYPE, Australian Bureau of Meteorology, Ventusky, Windy, Eumetsat, Worldview earthdata, Catchment based models (their own work).



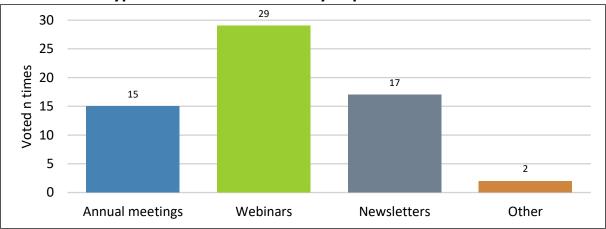
13.Are you aware of the online form in order to get into contact with GloFAS team?

More than half of the survey participants (60%) are not aware about the online form, which is the prime contact channel to reach the technical GloFAS team. This shows a clear need for action, such better positioning of the functionality on the web and/or promotion of this feature at various situations (webinars, presentations, on the website).



14. If you have used the GloFAS contact form, have you been helped with regards to your request?

22 out of the 35 survey participants have not requested help through the GloFAS contact form, which might be related to either that they did not need any help or that they did not know about the GloFAS contact form. However, from the 13 survey participants that have used the GloFAS contact form to receive help, only 5 have actually received it. This might be related to the change in workflow that happened during 2021 with the new distribution of user support under the new service contracts. As this parameter is now a KPI, which is frequently monitored we hope to improve this service component.



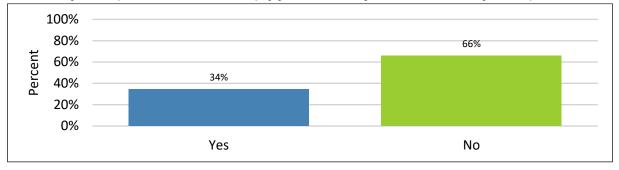
15. Which type of outreach events do you prefer?

Survey participants preferred mostly webinars (29 votes) as outreach events, but annual meetings (15 votes) and newsletters (17 votes) are also well accepted. Other suggestions were: tweets with short updates or virtual workshops (possibly in more languages than English – one survey participant suggested Spanish as an alternative).

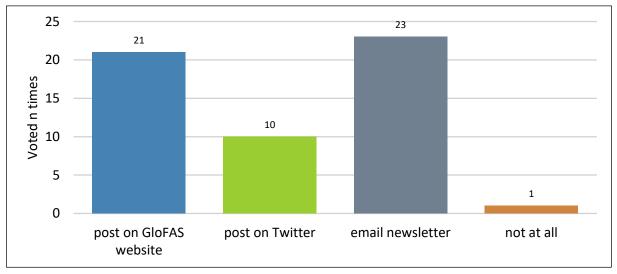
16. Which topics would you like to be addressed more in detail for upcoming GloFAS events? (open question)

- How to best use GloFAS? Better understanding of scope and limitations.
- Capacity building on flood forecasting and early warnings. How to translate GloFAS data into a framework of action?
- Engagement with users to identify priorities for future developments.
- Evaluation of meteorological and hydrological forecasts for different events and geographical regions.
- Improvements on "time/space" scale, on reliability of data feeds, on accuracy and confidence levels of hydrological models per basin and in specific geographic regions.
- Forecast data download and applications.
- Better understanding of multi-hazards (e.g. link with post fire burn scar areas, link of watersheds and fires with drought).
- Other topics: Downscaling GLOFAS flood inundation, Global Flood Monitoring System, GLOFAS API.

17. Are you aware of the current development in GloFAS, i.e. increase in spatial resolution from 0.1 degree (approximately 11 km at the Equator) to 3 arcminutes (approximately 5 km at the Equator)?



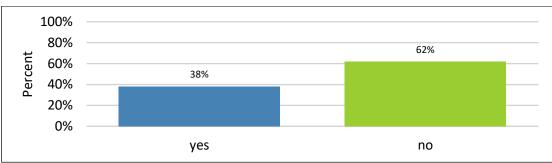
Two third of survey participants are not aware about the largest update that is planned for GloFAS in the next year: the update to a much higher spatial resolution. This shows evidently that stronger and more pro-active communication efforts are needed to reach the GloFAS user community about planned updated, especially if those are as significant as this one.



18. How do you like to receive information about future developments in GloFAS?

Survey participants would like to receive information about future developments in GloFAS mostly through either an email newsletter (23 votes) or a post on the GloFAS website (21 votes), followed by Twitter (10 votes).

While posts on GloFAS website and on our Twitter channel are already used, there is currently no mechanism established for the email newsletter. However, considering that the email newsletter has been voted as number one option for outreach, reveals the need to establish such an email list mechanism.



19. Would you like to publish your GloFAS User story on the GloFAS website?

38% of the survey participants would like to publish their GloFAS user story on the GloFAS website. To provide a stage for all those applications that already use GloFAS is an excellent opportunity which is always welcomed by the GloFAS team, but no active efforts have been undertaken yet in how to reach those that would like to publish their user stories.

20. Do you have any comments or suggestions about possible improvements or additions to the GloFAS service? (open question)

- Data reliability/availability needs to be improved. Possibilities for data download. Opportunities to feed in observations to validate forecasts?
- Improve the visual resolution of the rivers in the Map Viewer. Readability of name of rivers is difficult even after zooming in some regions (either font is too small or river has no name, e.g. Africa). Also, there are consistency issues on the name of rivers. Sometimes, names of rivers are found different in other sources (e.g. South America).
- The thresholds for the 2-year, 5-year, and 20-year return periods for river flooding in GloFAS are too low for some regions compared to the official observation data from the relevant flood gauges. Possibility for using thresholds with larger return periods?
- GloFAS does not seem to fully account for 'built up' areas, topography or other civil developments and infrastructure that may influence the pattern or severity of flooding. Possibilities for accounting for this to improve accuracy and eliminate false alarms or no triggers?
- Possibilities for including flash flooding potential.
- After the most recent calibration, there are no alerts for Sub-Saharan Africa. Check if this is still the case.
- Possibility for adding user-adjustable forecast time period for the flooding and ECMWF precipitation probabilities (e.g. 2-6 days).
- More information to potential users about the suitability of GloFAS for its use in specific situations, strengths, limitations and end user focused skill assessments.

Conclusions and suggestions

The GloFAS annual survey 2021 was the first of its kind and provided valuable insight in the GloFAS service and the needs of the GloFAS user community.

We gained some insight, some expected, some unexpected, which we summarise in the following points, sometimes including reactions from our side:

- Survey outreach/distribution: The fact that 0% of survey participants came from the civil protection sector suggests that either the invitation to the GloFAS survey was not well distributed or that this sector needs to receive elevated attention as the benefits of using GloFAS for those would be large.
- **GloFAS products access facilities:** GloFAS products are most commonly accessed through the GloFAS website. The user uptake of the other data access facilities (e.g. CDS, MARS, WMS-T or API) that allows advance usage of the GloFAS data is comparatively low and shows the need for promotion and training.
- **GloFAS wiki:** The fact that 60% of the survey participants did not know the GloFAS wiki (<u>https://confluence.ecmwf.int/x/PhtEDg</u>), which contains a richness of service and product information, shows that the GloFAS wiki needs to be more actively promoted.
- User support via the online contact form on GloFAS-IS: Same for the online contact form on the GloFAS website (<u>https://www.globalfloods.eu/contact-us/</u>) which is the prime channel for reaching out to the GloFAS team with product and service questions, also 60% of the survey participants were not aware about it and calls for more active efforts of communication.
- Quality of user support: At the same time the user support received through the online request is not optimal yet. Almost two-third which have reached out through the contact form have not receive satisfying support. This shall hopefully improve as new workflows are in place and KPIs for monitoring.
- Email newsletter: (E-mail) newsletter has scored very highly in how the user likes to receive news on future developments and outreach events. This opens up an untapped potential on how to further enhance communication between GloFAS service and GloFAS user community. A more pro-active outreach campaign will be discussed, taking also the answers of the preferred information channel (question 18) into account. A strategy shall be thought of on how to establish such an email list and the newsletter.
- **Preferred outreach method:** Webinars score the highest as preferred outreach event and we are happy to share with the GloFAS community that we are planning to have at least twice-yearly GloFAS webinars.
- Communication on planned/ongoing upgrades: The fact that about two-third of GloFAS users are not aware about the major GloFAS upgrade we are working on (the upgrade of the spatial resolution to 3 arcmin) shows that communication and outreach needs to be more pro-active and on a broader scale. This is also supported by the answers to question 20: Some of the suggested improvements are either already in the pipeline or point us to interesting observations that we would like to follow up. This shows once more the importance of an active communication between users and developers to streamline efforts and to assure that user needs are heard and met.
- **GloFAS use cases:** Another currently still untapped potential is a platform for GloFAS users to showcase their use of GloFAS in their own applications in form of user stores that can be uploaded on the GloFAS website. Currently no mechanism is in place on how to reach those interested users and to invite them to add their user story on the GloFAS website.

All of those points will be subject to further internal discussion to see how we can address those with the ultimate goal of enhancing our service to you.

Final note

We thank the GloFAS survey participants for having participated to this survey, which we will repeat from now on annually (every year in January). We assure you that your input is valuable and that we will take it on board for the future evolutions of our service.

If you like to add your user story on GloFAS data to our website please do reach out to us: <u>https://www.globalfloods.eu/contact-us/</u>

Thank you!

Your CEMS floods team