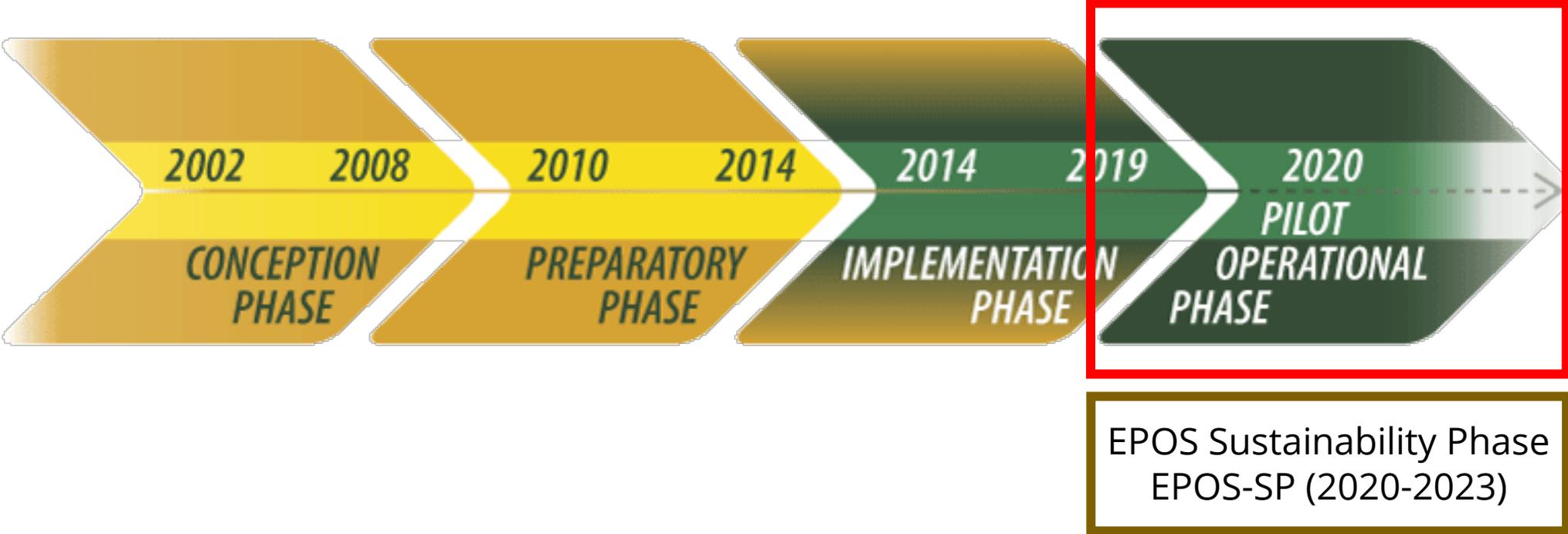




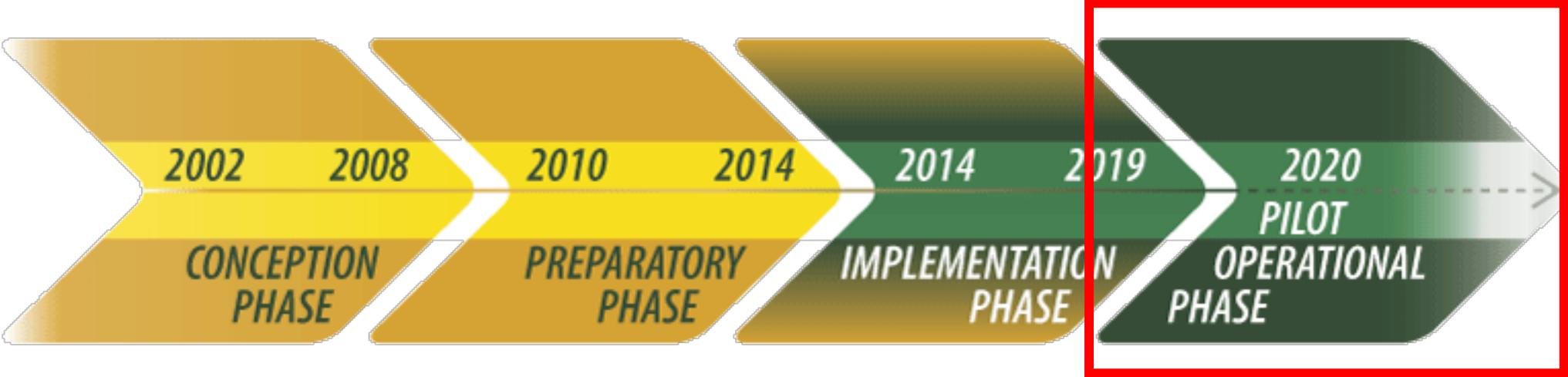
Pilot Operational Testing

**Jan Michalek, Kuvvet Atakan, Daniele Bailo, Keith Jeffery,
Jean-Baptiste Roquencourt (BRGM), Jakob Molander (GEUS),
TCS Service Providers**

EPOS Timeline and Pilot Operational Phase (POP)



EPOS Timeline and Pilot Operational Phase (POP)



POP (2020-2022)
has two important components:

Service Activation
Roadmap
SAR

Pilot Operational
Testing
POT



EPOS 2021-2023 Service Activation Roadmap

Written by the EPOS ERIC Executive Director and Scientific Officer
with the contribution of Kauzar Saleh and Otto Lange
shared with the EPOS ERIC Executive Committee and Service Coordination Committee
to be discussed and approved by the EPOS ERIC GA in December 2020

Version 7.0 - December 2nd 2020

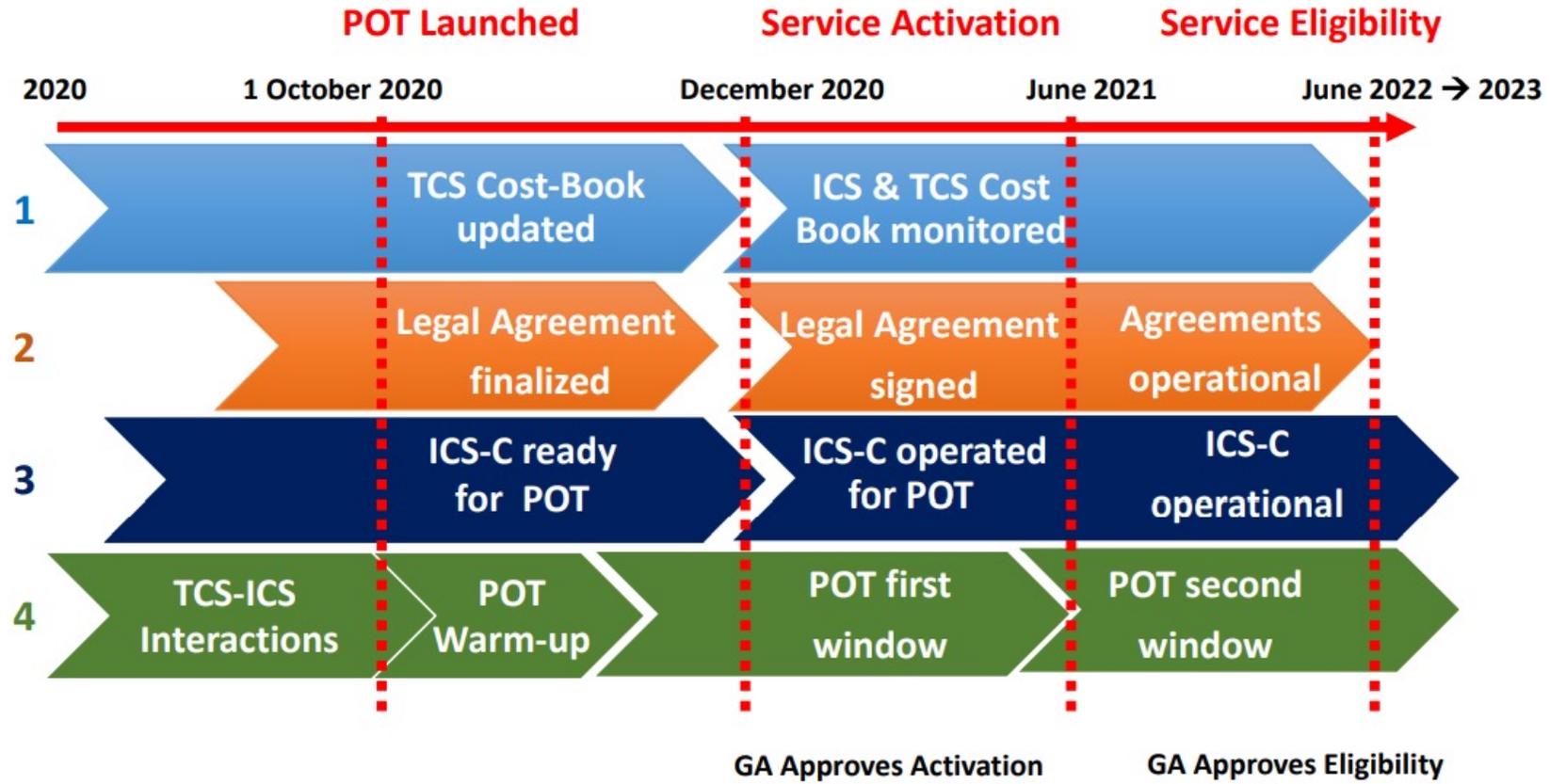
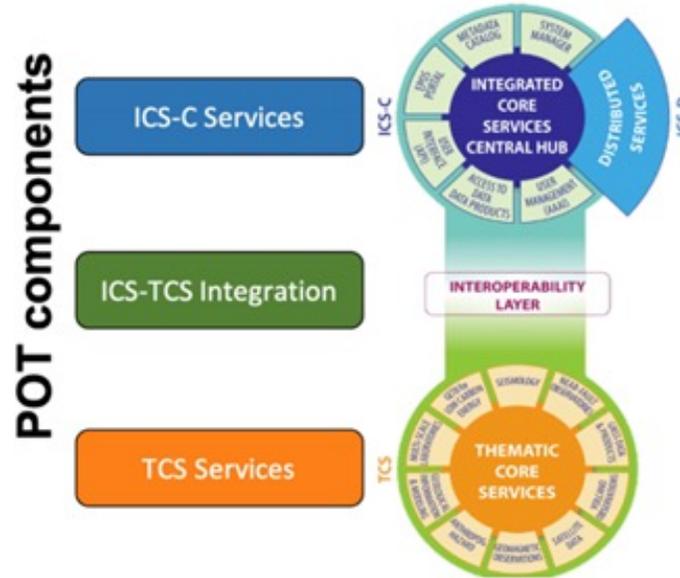


Figure 4. Service Activation Roadmap for Virtual Access to Data and Products services.

EPOS 2021-2023 Service Activation Roadmap

Written by the EPOS ERIC Executive Director and Scientific Officer
 with the contribution of Kauzar Saleh and Otto Lange
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Version 7.0 - December 2nd 2020



Responsibilities: TCS communities, ICS-TCS Interaction Team, ICS-C Team / IT Officer

	Technical Testing	User Testing
ICS	<ul style="list-style-type: none"> ICS-C robustness and availability Replication across sites Resources usage (CPU, RAM, Storage) 	
ICS-TCS	Coordinated testing of: <ul style="list-style-type: none"> TCS services access through ICS-C 	User Testing (not internal) <ul style="list-style-type: none"> Scientific user group External users group Other user groups
TCS	TCS Independent Testing: <ul style="list-style-type: none"> Availability and performance Online documentation Quality Assurance 	TCS independent testing of: <ul style="list-style-type: none"> Portals Other Services

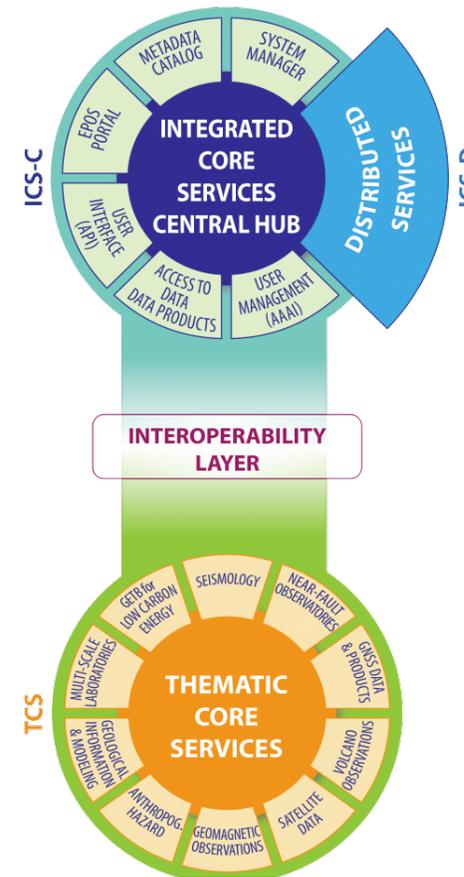
Figure 3. Pilot Operational Testing (POT) components and testing types



POT Components



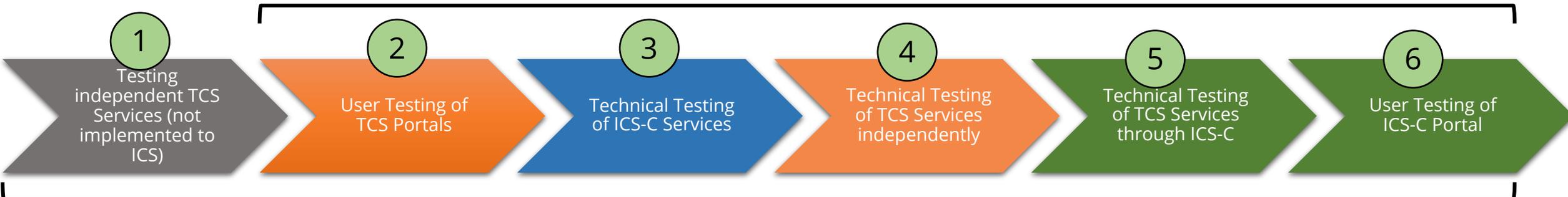
POT



ICS System Architecture

TCS testing and ICS-TCS testing

Pilot Operational Testing (POT) (2-6)



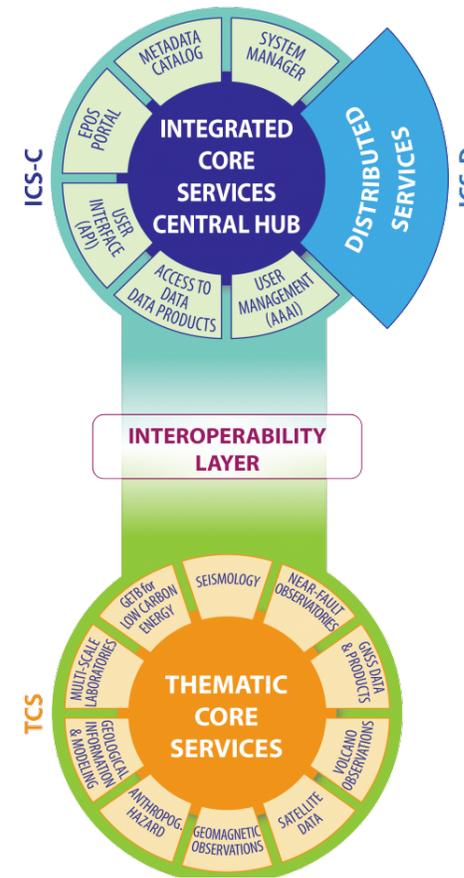
Testing of the EPOS Delivery Framework



POT Components



POT



ICS System Architecture

Responsibilities

TCS testing , ICS-TCS testing

Pilot Operational Testing (POT) (2-6)



POT workplan (window 1) - plan in 2020

POT Gantt chart		2020				2021						2022											
		WINDOW 1										WINDOW 2											
		Q3	Q4			Q1			Q2			Q3			Q4			Q1			Q2		
Group of tests	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	
2	User testing of TCS portals																						
3	Technical testing of ICS-C services																						
4	Technical testing of TCS services - before intergration into ICS																						
5	Technical testing of the ICS-TCS integration (TCS accessed via ICS-C)																						
6	User testing of ICS portal																						
	ICS-TCS Interaction work cycles (pitches)	WS		WS		WS				WS		WS		WS		WS		WS		WS		WS	

← Warm-up month

← Reporting for Window 1

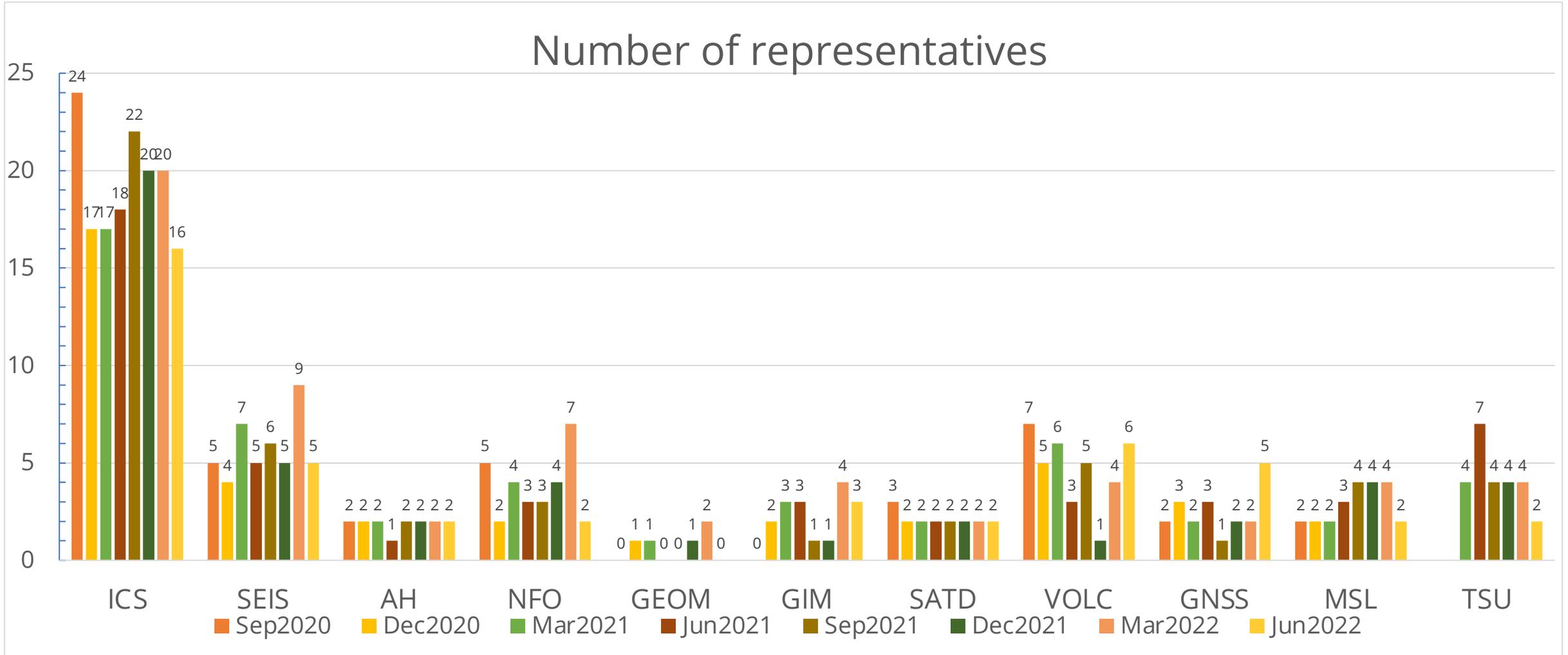
POT Execution plan (adjusted after window 1)

POT Gantt chart		2020				2021								2022														
		WINDOW 1								WINDOW 2																		
		Q3	Q4			Q1			Q2		Q3		Q4			Q1			Q2									
Group of tests	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6						
2	User testing of TCS portals		Red	Red	Yellow		Red	Red			FIXING WORK AFTER TESTING WINDOW 1							Red	Red									
3	Technical testing of ICS-C services	Red	Red	Red	Yellow	Yellow	Yellow												Red	Red								
4	Technical testing of TCS services - before intergration into ICS		Red	Red	Red	Yellow	Yellow												Red	Red	Red	Red						
5	Technical testing of the ICS-TCS integration (TCS accessed via ICS-C)					Red	Red	Red	Red															Red	Red	Red	Red	
6	User testing of ICS portal								Red	Red																	Red	Red
	ICS-TCS Interaction work cycles (pitches)	WS			WS			WS									WS			WS			WS			WS		

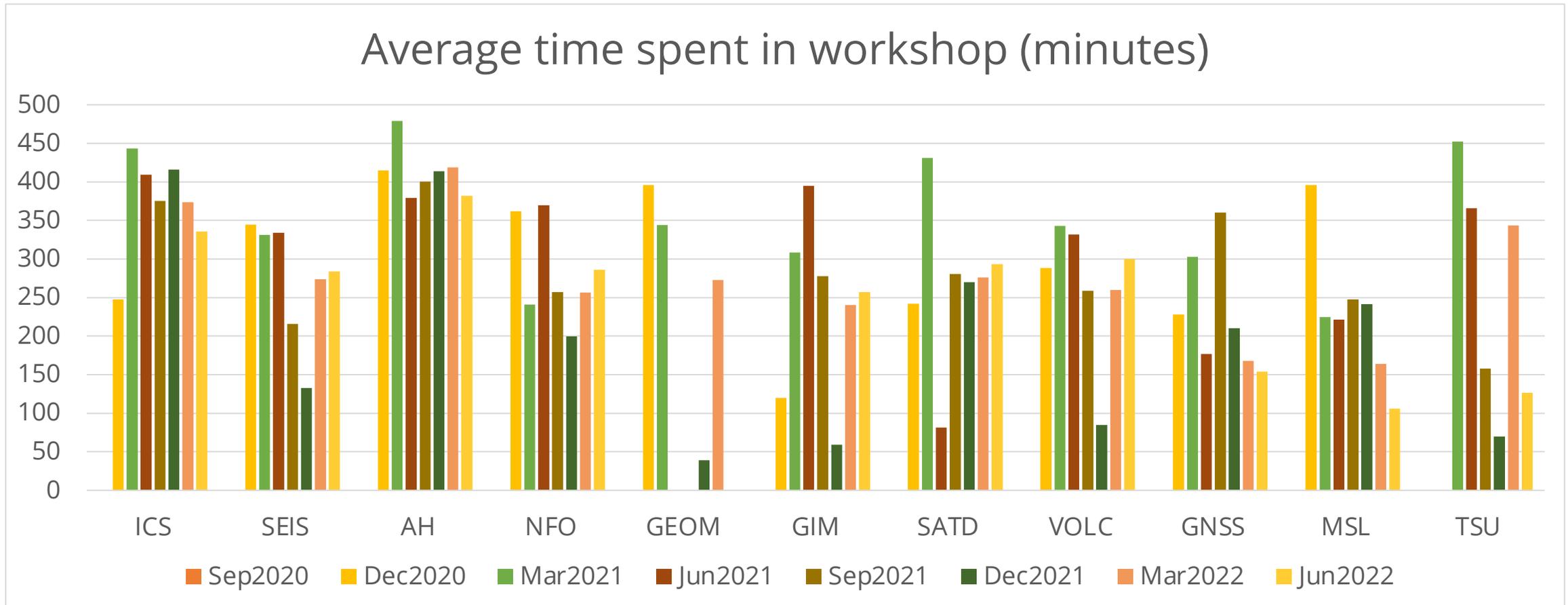
DELAY

Participation in ICS-TCS Interaction Workshops (1/2)

Number of representatives



Participation in ICS-TCS Interaction Workshops (2/2)



Individual POT tests



POT #2 - User testing of TCS portals

List of TCS portals:

<https://www.epos-eu.org/community-portals>

Test 2.1 Basic accessibility test

Test 2.2 Usefulness for the purpose

Test 2.3 Integrated functionality

Test 2.4 Reference to EPOS Data Portal

Test 2.5 User guidelines availability

Newly tested in window 2:

TSU: <https://www.tsunamidata.org/>

MSL: new portal <https://epos-msl.uu.nl/>

- development ongoing

DATA ACCESS CONTACT US INTRANET

EPOS
EUROPEAN PLATE OBSERVING SYSTEM

ABOUT EPOS PARTNERS SERVICES PROJECTS COMMUNICATION

Welcome to the
EPOS DATA PORTAL

A multi-disciplinary open data portal for integrated access
to Solid Earth science datasets.

Data Access

256 Research Infrastructures	37 Data and Service Providers	~100 Petabytes of Integrated Data	228 Services	>2000 Users
--	---	---	------------------------	--------------------------

Integrated Core Services
The Integrated Core Services (ICS) provides the core of the EPOS e-infrastructure ensuring interoperability between the National Research Infrastructures (NRIs).

Thematic Core Services
Each community provides access to its resources through European-wide services called Thematic Core Services (TCS).

POT #4 - Technical testing of TCS services - before integration into ICS

Test 4.1 Service exists and is reachable – URL check

Test 4.2 Availability and performance (not quality of data)

Target criteria: 99% availability (minimum testing period is 1 month), 5 sec with 20 requests per second every second hour (?); report typical performance

Test 4.3 Online documentation

Test 4.4 Quality assurance (data content and quality)

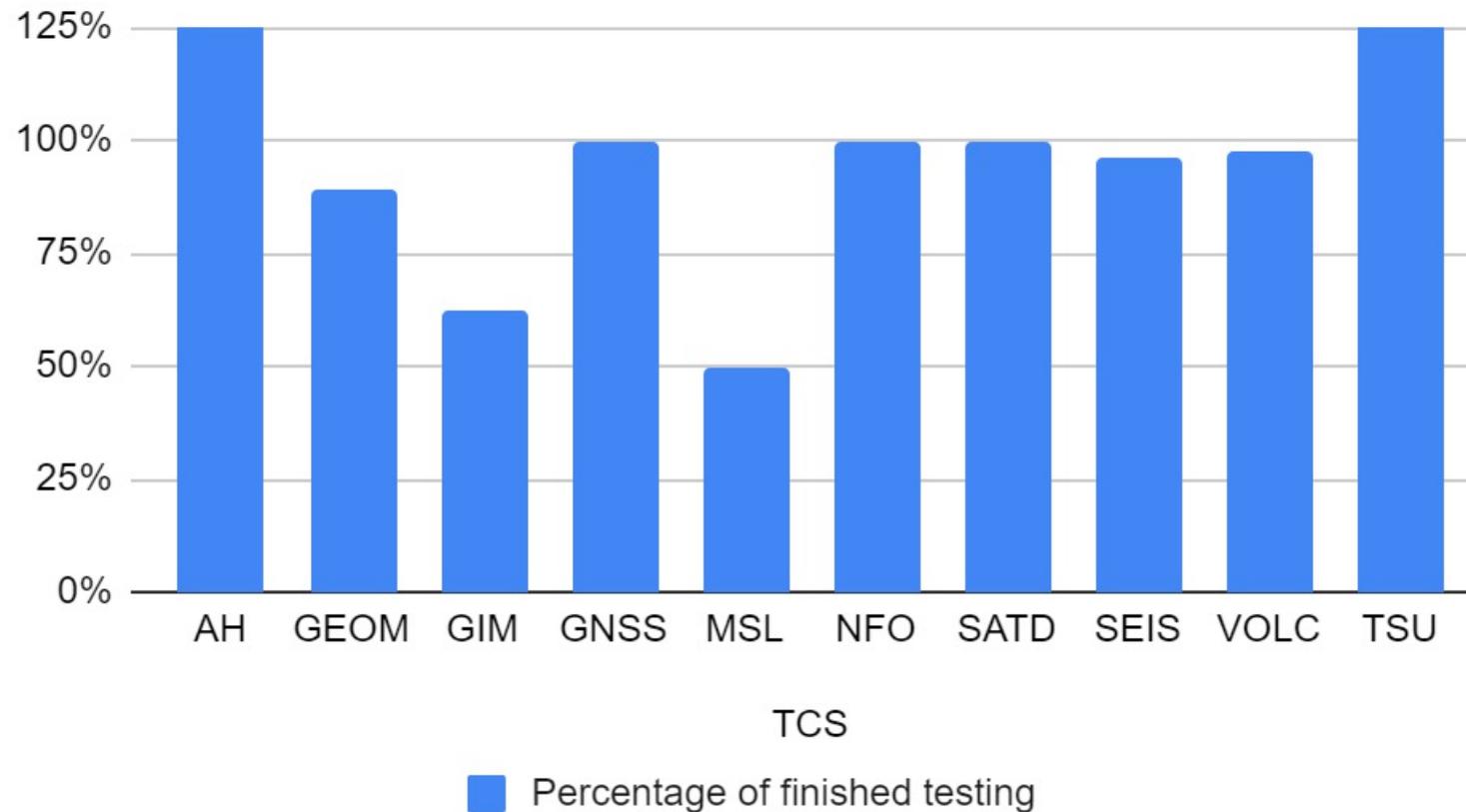
Services performing poorly in window-1 were tested again:

- AH, SATD

New services:

- MSL (6 services), TSU (9 services)

POT #4 - Technical testing of TCS services - before integration into ICS



POT TCS related tests

	POT #2 - User testing TCS portals		POT #4 – Testing TCS services
TCS	Updating links and description for TCS portals	User survey for TCS portals	
SEIS	finished	8 of 9 reported	Finished. 52 out of 58 services reported
AH	finished	Finished	Finished. Testing repeated.
GEOM	finished	Finished	Finished. Reported 17 out of 19 services
SATD	finished	Finished	Finished. Reported all 8 services. Testing repeated.
GIM	finished	1 of 2 reported	Finished. Reported 5 out of 8 services
NFO	finished	Finished	Finished. Reported all 37 services
MSL	finished	New MSLCAT portal	Finished. Tested 3 out of 6 services
VOLC	finished	Finished	Finished. Reported 43 out of 45 services
GNSS	Finished	Finished	Finished. Reported all 14 services
TSU	Finished	Finished	Finished. Reported 32; 9 services integrated.

(GREEN CELS ~ 90% REPORTED)

POT #3: Technical Testing of ICS-C Services

- Service: DevOps Tools
 - 3 tests
- Service: ICS-C endpoint webAPI
 - 7 tests
- Service: ICS-C endpoint metadata ingestion
 - 7 tests
- Service: Hosting Infrastructure Procedures
 - 2 tests
- Service: cross site replication DNS
 - 1 test
- Service: cross site replication workspace
 - 1 test
- Service: ICS-C modules
 - 1 test
- Service: Monitoring tools
 - 6 tests

POT #3: Technical Testing of ICS-C Services

Monday 20 June 2022: The production performance test was successful. Error below 0.02%.
While on the 16/06 it was 65-70 % successful.

epos-prod-webapi-to-db-production.jmx (C:\Users\roquencourt\Downloads\epos-prod-webapi-to-db-production.jmx) - Apache JMeter (5.4)

File Edit Search Run Options Tools Help

01:00:40 1 0/20

Test Plan

- jp@gc - Ultimate Thread Group
 - Recording Controller
 - webapi to db
 - 1 /api/webapi/v1.3/resources/search
 - 2 /api/webapi/v1.3/resources/detail
 - /api/webapi/v1.3/getoriginalurl

Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

Filename: Log/Display Only: Errors Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K...	Sent KB/sec	Avg. Bytes
1 /api/weba...	20492	3532	318	6971	636.20	0.02%	5.6/sec	1915.45	3.02	348289.9
webapi to d...	20492	3532	318	6971	636.20	0.02%	5.6/sec	1915.44	3.02	348289.9
TOTAL	40984	3532	318	6971	636.20	0.02%	11.3/sec	3830.89	6.04	348289.9

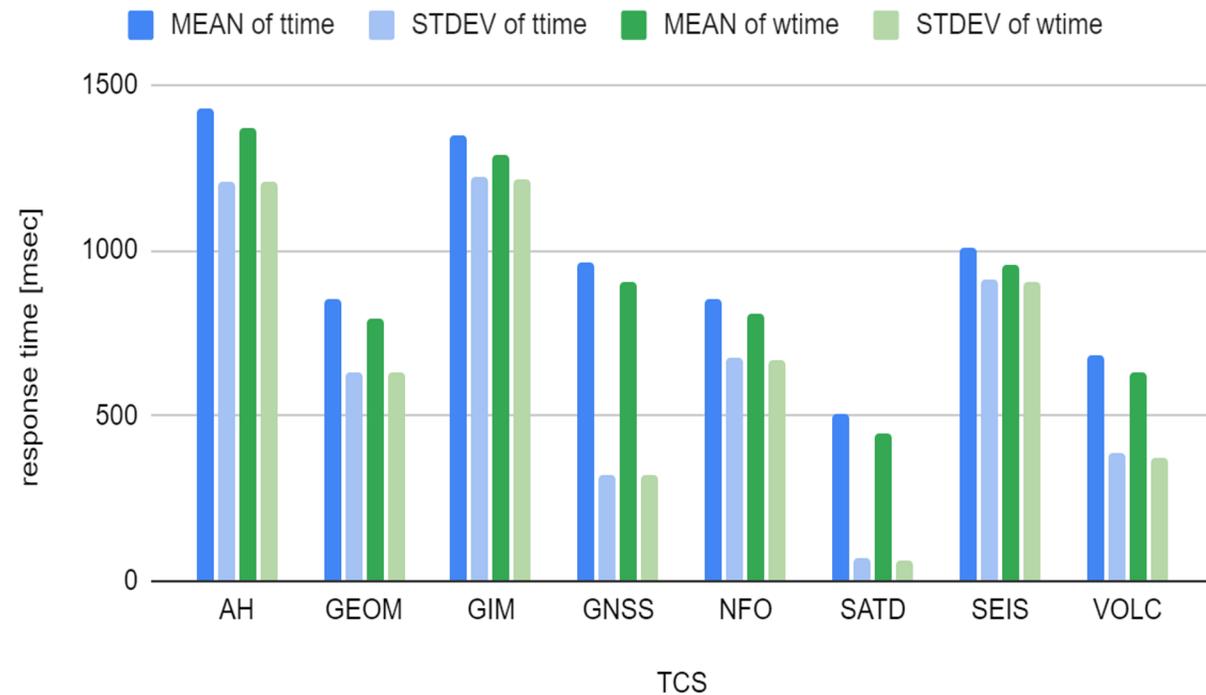
Summary Report

View Results Tree

POT #5: Technical testing of ICS-TCS integration (window 1)

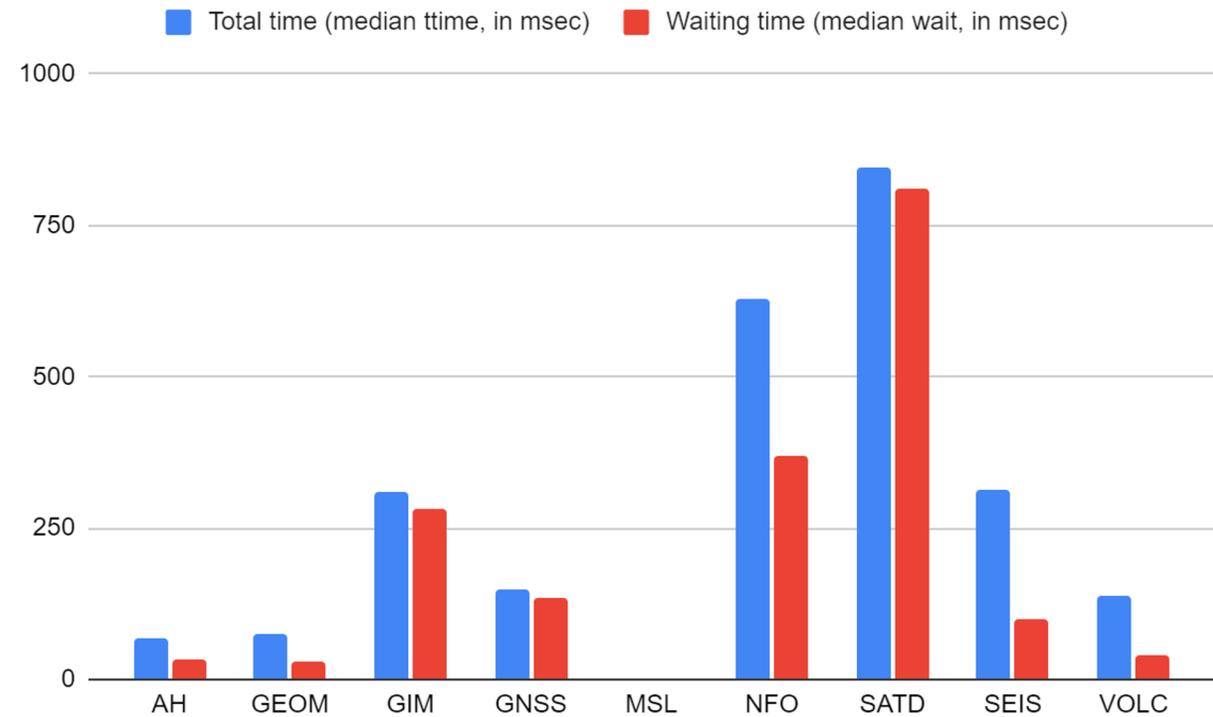
Testing TCS services remotely (POT #5)

MEAN of ttime, STDEV of ttime, MEAN of wtime and STDEV of wtime



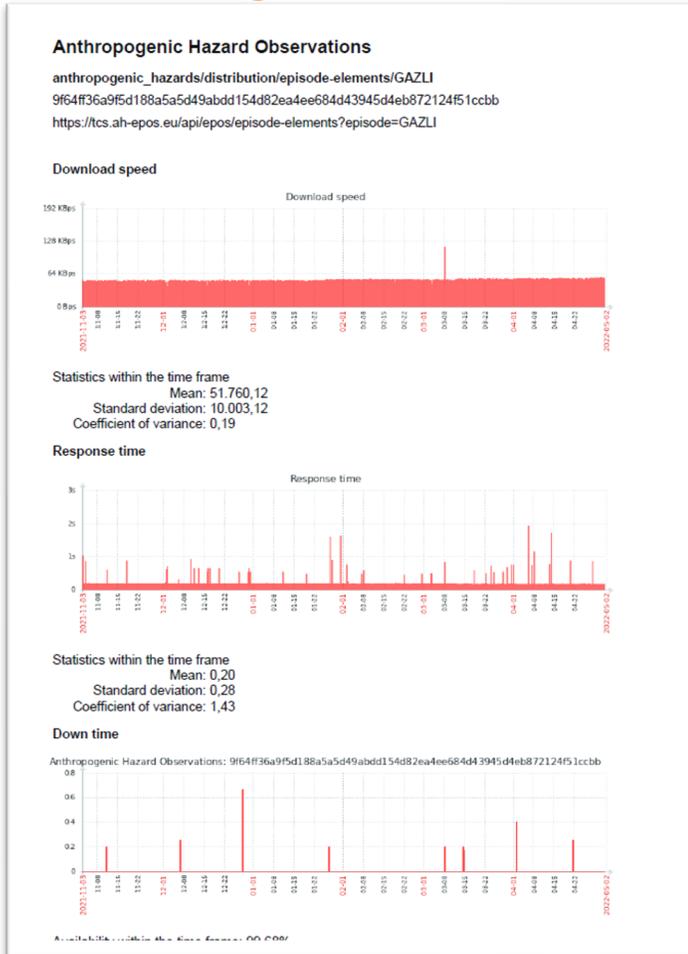
Testing TCS services locally (POT #4)

Median of medians



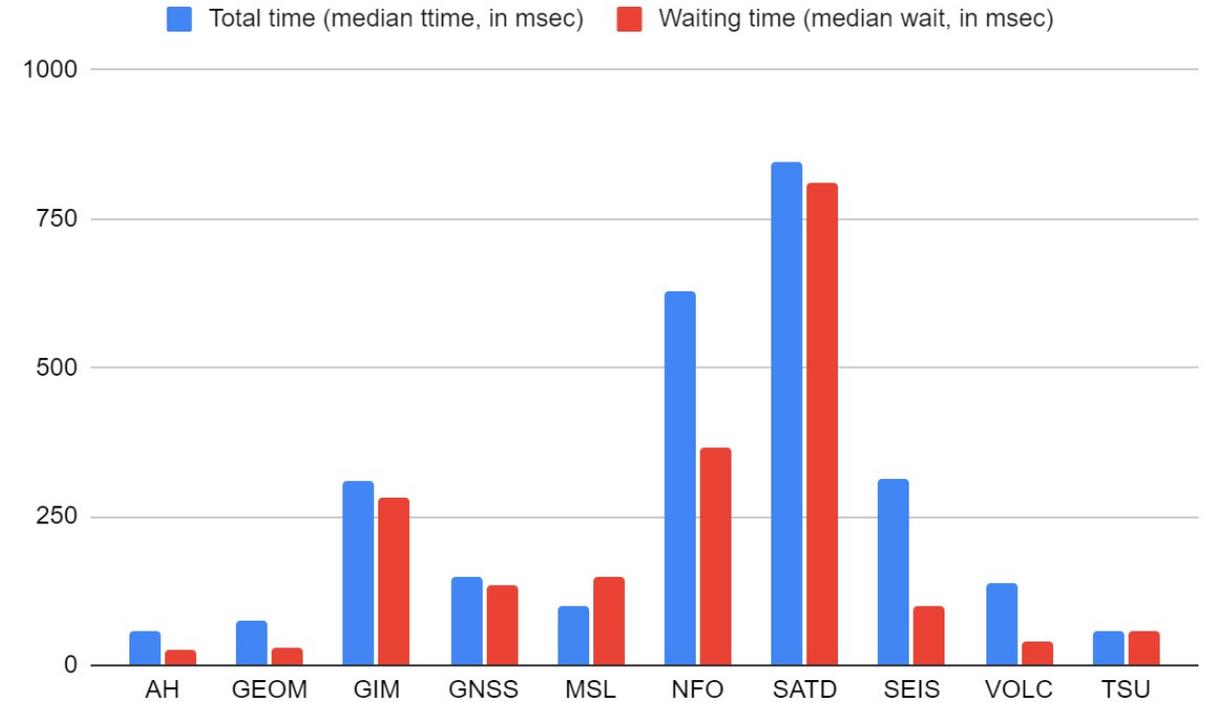
POT #5: Technical testing of ICS-TCS integration (window 2)

Testing TCS services remotely (POT #5) – GEUS monitoring



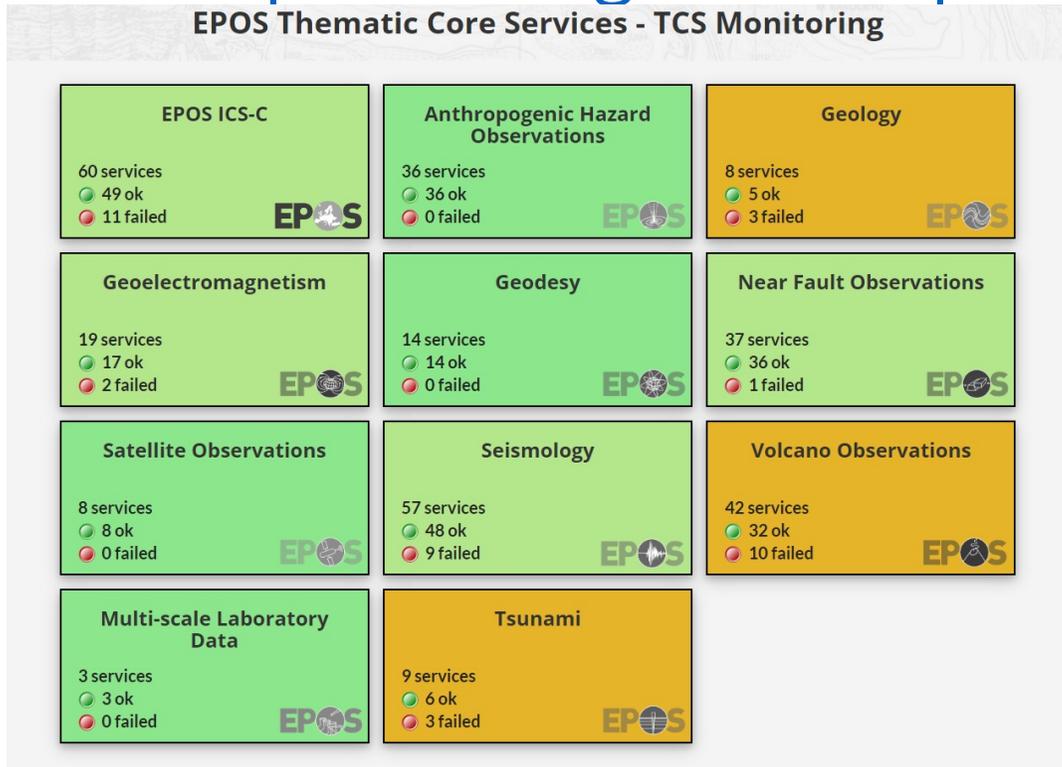
Testing TCS services locally (POT #4)

Median of medians



POT #5: Technical testing of ICS-TCS integration (window 2)

- Monitoring system at GEUS: <https://data.geus.dk/eposmonitoring/>



Detailed logs

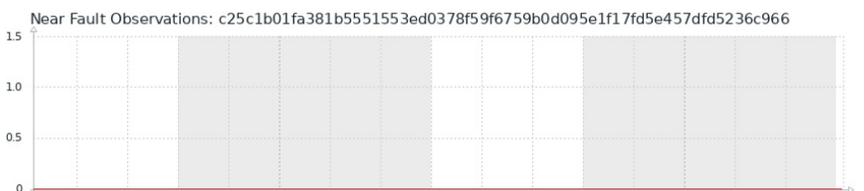
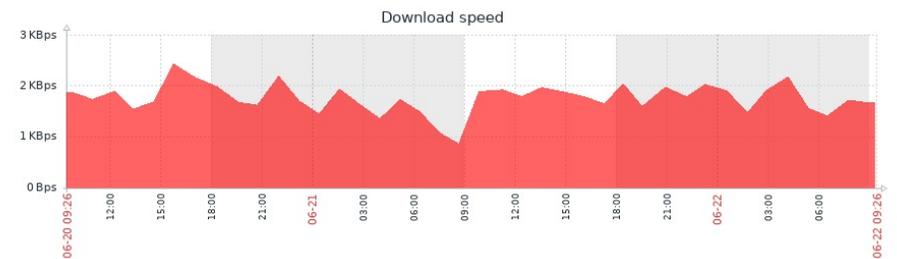
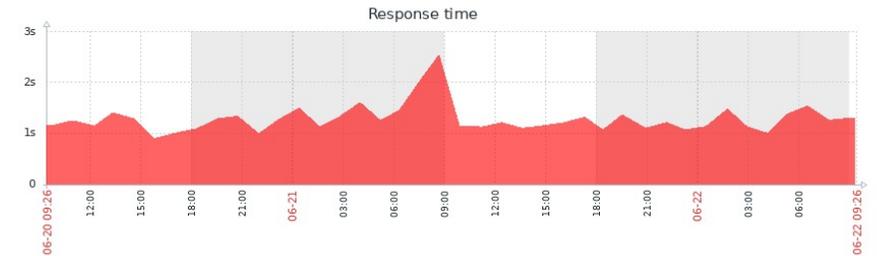
Id	Timestamp	Service name	Formats	Status	Used in	Details
23fae	- NA -	GNSS Stations with RINEX Data	GEOJSON	OK	Geodesy	Show details
dc901	- NA -	Download RINEX file Metadata from EPOS Validated Providers	APPLICATION/JSON	OK	Geodesy	Show details
cb91e	- NA -	List RINEX Files search parameters	APPLICATION/JSON	OK	Geodesy	Show details
1acfd	- NA -	Raw GNSS Position Time Series from WUT-EUREF	PBO, COVJSON, JSON, XML, HECT...	OK	Geodesy	Show details
ee9af	- NA -	Cleaned GNSS Position Time Series from UGA-CNRS	PBO, JSON, HECTOR, COVJSON, M...	OK	Geodesy	Show details
52d19	- NA -	Cleaned GNSS Position Time Series from INGV	XML, PBO, HECTOR, MIDAS, JSON...	OK	Geodesy	Show details
386cb	- NA -	Cleaned GNSS Position Time Series from ROB-EUREF	MIDAS, COVJSON, PBO, JSON, XM...	OK	Geodesy	Show details
5314b	- NA -	Cleaned GNSS Position Time Series from LTK-EUREF	COVJSON, PBO, XML, MIDAS, JSO...	OK	Geodesy	Show details
1a96e	- NA -	GNSS Station Velocities from ROB-EUREF	APPLICATION/JSON	OK	Geodesy	Show details
8614d	- NA -	GNSS Station Velocities from LTK-EUREF	APPLICATION/JSON	OK	Geodesy	Show details
bdb56	- NA -	List Product Download Search Criteria	APPLICATION/JSON	OK	Geodesy	Show details
c6a24	- NA -	GNSS Stations with Products	GEOJSON	OK	Geodesy	Show details
8c837	- NA -	GNSS Station Velocities from UGA-CNRS	APPLICATION/JSON	OK	Geodesy	Show details

POT #5: Technical testing of ICS-TCS integration (window 2)

- Monitoring system at GEUS:
<https://data.geus.dk/eposmonitoring/>

Details for service 'f747f'

Id	f747f4af36953621a6e28484909ed4068eb744cb26828a13d62e31df65608dfb
Service name	CRL Events
Used in	Near Fault Observations
Service url	https://nfocr.l.u-strasbg.fr/fdsnws/event/1/query <input type="button" value="Go!"/>
Service formats	TEXT, XML, GEOJSON
Status	ERROR (RESPONSE CODE)
Details	response code "413" did not match any of the required status codes "200,201,202,203,204"
Timestamp	2022-06-15 13:51:35



POT #6: Services used during scientific user testing (June 2021)

The screenshot displays the EPOS ICS web application interface. At the top, there is a navigation bar with the EPOS ICS logo, a 'Portal User Testing Feedback' button, and links for 'Terms and Conditions', 'Feedback', 'Help', and 'Login'. Below the navigation bar, there is a search and workspace sidebar on the left, a main map area in the center, and a details panel at the bottom.

Search and Workspace Sidebar:

- SEARCH:** Advanced Search (Results: 38)
- WORKSPACE:** Anthropogenic Hazard Observations (9), Near Fault Observations (25), Seismology (4)
- PROCESSING:** Seismological products services (1), Earthquake source data (1), Fault rupture models (SRCMOD)
- Selected Items (10):** European Database of Seismogenic Faults - Crustal Faults (OGC WFS), TABOO Events, Geological Map 1:1,000,000 (OneGeology-Europe layer), TABOO Stations, GNSS Stations with Products, TABOO Radon Stations, TABOO CO2 Stations, Historical earthquakes of interest for the TABOO NFO (FDSN-event), LOS Displacement Time Series, World Data Centre (WDC) Geomagnetic Observatory Station List

Main Map Area:

- Map view selected (Graph and Table options also available)
- Coordinates: 42.87577, 11.57888
- Map shows a geographical view of Europe with various data layers overlaid, including red lines representing faults and colored circles representing stations and events.
- Legend on the right lists layers: LOS Displacement Time Series, World Data Centre (WDC) Geomagnetic Observatory Station List, LOS Displacement Time Series, Historical earthquakes of interest for the TABOO NFO (FDSN-event), TABOO CO2 Stations, TABOO Radon Stations, GNSS Stations with Products, TABOO Stations, TABOO Events, European Database of Seismogenic Faults - Crustal Faults (OGC WFS), World Imagery, Geological Map 1:1,000,000 (OneGeology-Europe layer)

Details Panel (TABOO Events):

- Name:** TABOO Events
- Description:** This distribution provides access to Instrumental Earthquakes data (in terms of location and magnitude) through FDSN Event web service. Datasets are encoded in QuakeML and text format. Its related dataset covers the time period since 2010 and is limited to the Alta Val Tiberina (Central Italy) Near Fault Observatory.
- Spatial Coverage:** Show on map

Page-Footer: EPOS EUROPEAN PLATE OBSERVING SYSTEM logo on the left, and the number 871121 and the European Union flag on the right.

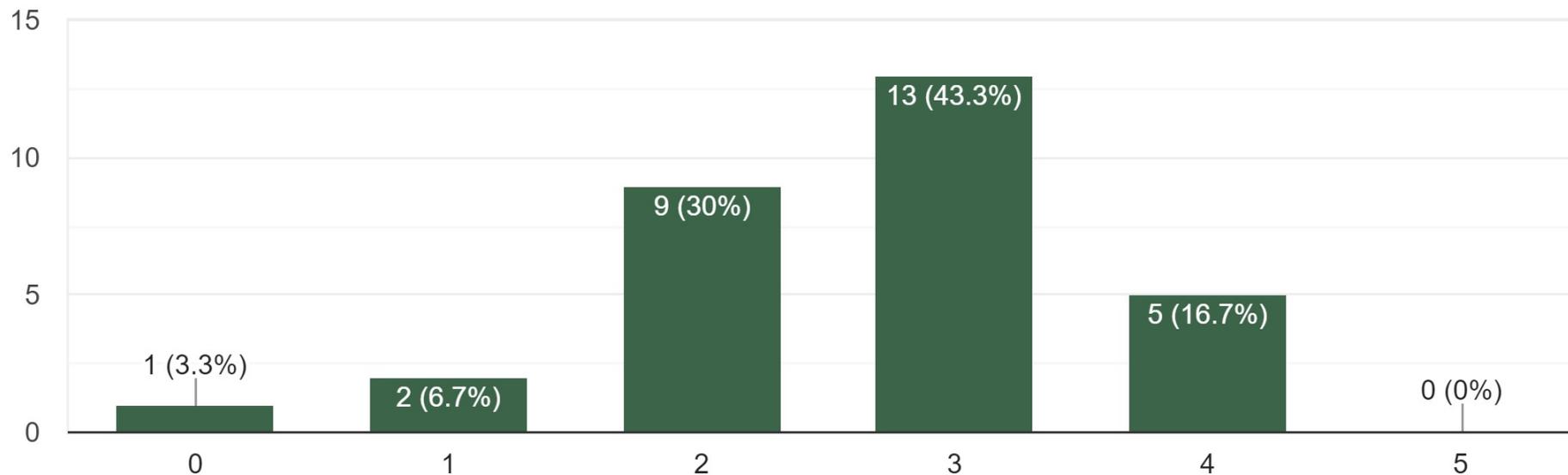
POT #6: User testing of EPOS Data Portal (ICS)

Scientific user testing

Do you consider the EPOS Data Portal easy to understand and navigate through?

30 responses

June 2021



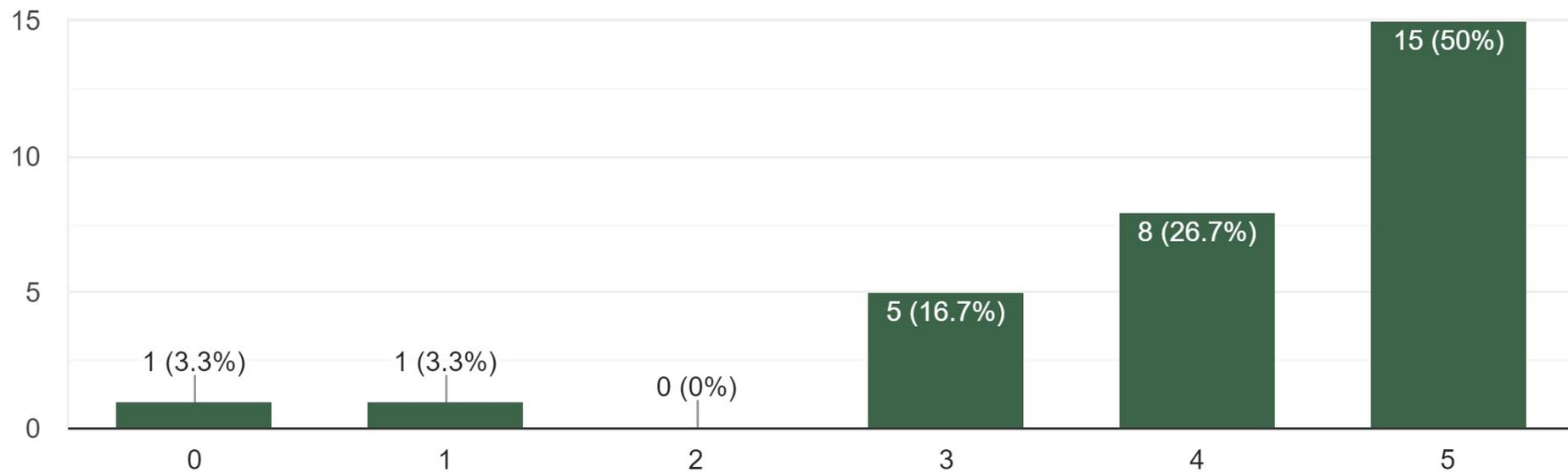
POT #6: User testing of EPOS Data Portal (ICS)

Scientific user testing

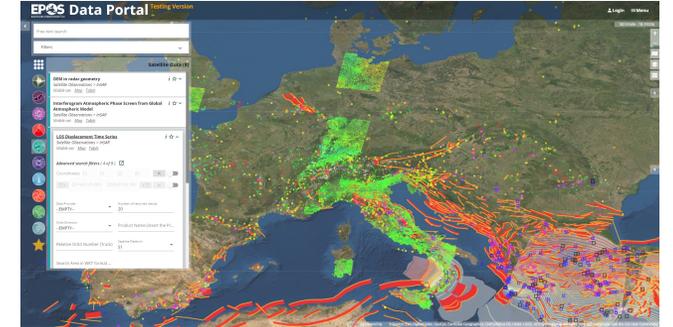
Do you think you will use the EPOS Data Portal again?

30 responses

June 2021



POT #6: User testing of EPOS Data Portal (ICS)

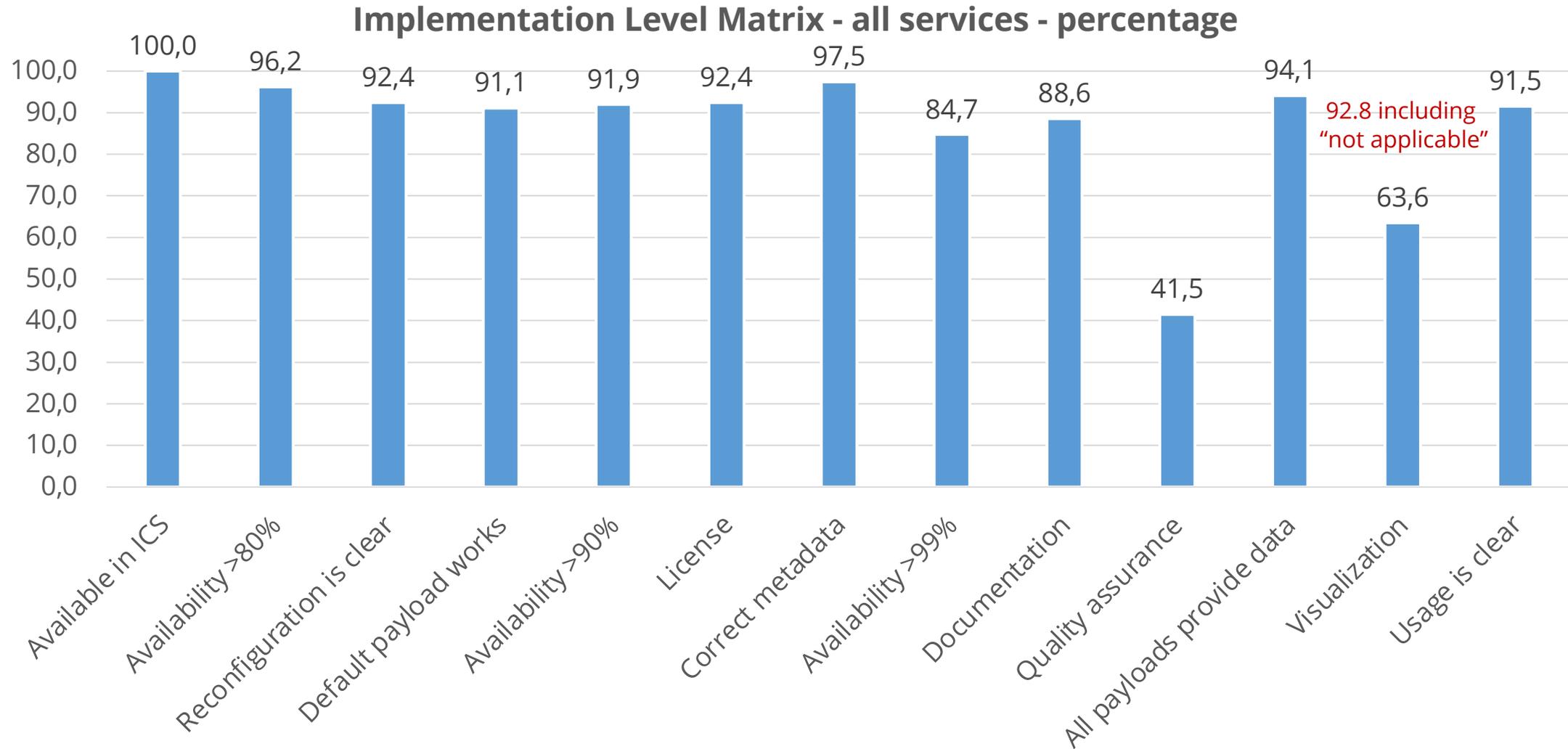


- General User Testing - 27 June (2 hours; 10:00-12:00; repeated at 13:00-15:00 CEST)
- Scientific User Testing - 28 June (3 hours; 09:00-12:00; repeated at 13:00-16:00 CEST)
- Currently 9 registered participants
- Please fill in the registration form for the EPOS Data Portal testing: <https://skjemaker.app.uib.no/view.php?id=12914967>

POT #6: Implementation Level Matrix (ILM)

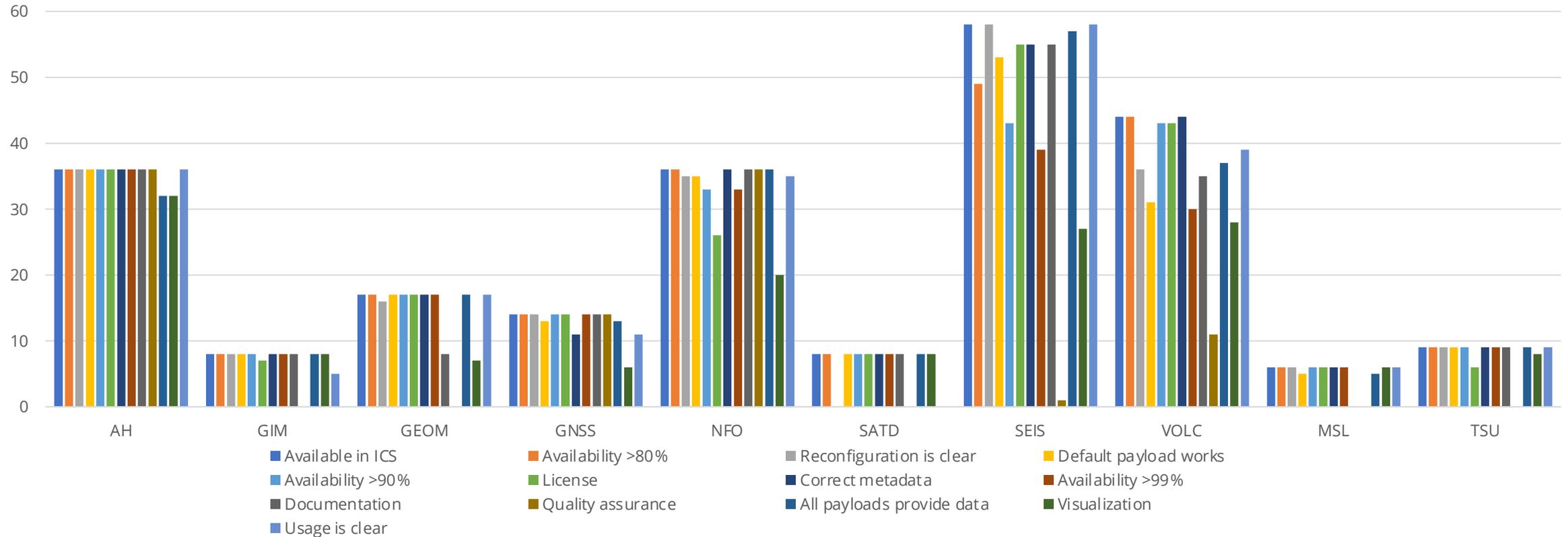
Implementation Level 1		Implementation Level 2					Implementation Level 3					
Service is running and reachable from ICS	Availability of the service is $\geq 80\%$ (POT4)	Re-configuration of the service and meaning of the parameters is clear for users.	Service default payload (response) contains useful data.	Availability of the service is $\geq 90\%$ (POT4)	License and/or usage conditions for the dataset is available and linked in ICS GUI.	Service is fully described with correct and clear metadata.	Availability of the service is $\geq 99\%$ (POT4)	Documentation link of the service provides thorough explanation of the service usage.	Quality assurance of the data is reachable from the documentation page.	All available downloadable payloads provide data.	Service payload is correctly visualized in the ICS GUI (map, table, time series). [0;1;not applicable]	Usage of the service and the data is clear for researchers.
		All service parameters are clearly described in the service documentation.	The first default query made by user by selecting the service in ICS portal provides expected data (either for download or in visualization).			Metadata information is correct - title, description, etc.		Documentation of the service contains all available parameters (their meaning, format, default values), available payload formats and their content description.	Each dataset need to have QA in place to allow users to make qualified decision whether the data is suitable for their research/purpose, i.e. what processing steps and methods were used for creating the dataset.	All payloads listed in ICS portal provides data content.	All indicated visualizations in ICS portal work correctly and provide content which has been approved by the TCS.	The selected service in ICS portal has all attributes to allow data usage in research without necessity of the user to search for information in places which are not directly linked from the ICS portal. All lower criteria are met.

POT #6: Implementation Level Matrix (ILM)



Implementation Level Matrix - results

ILM criteria per TCS



Outcome of POT window-2

- In general, outcome of POT window-2 is positive
- Services perform well technically both at TCS and at ICS
- Data, data products and services provided by ICS are found useful
- Generally positive user experience