



# PADC

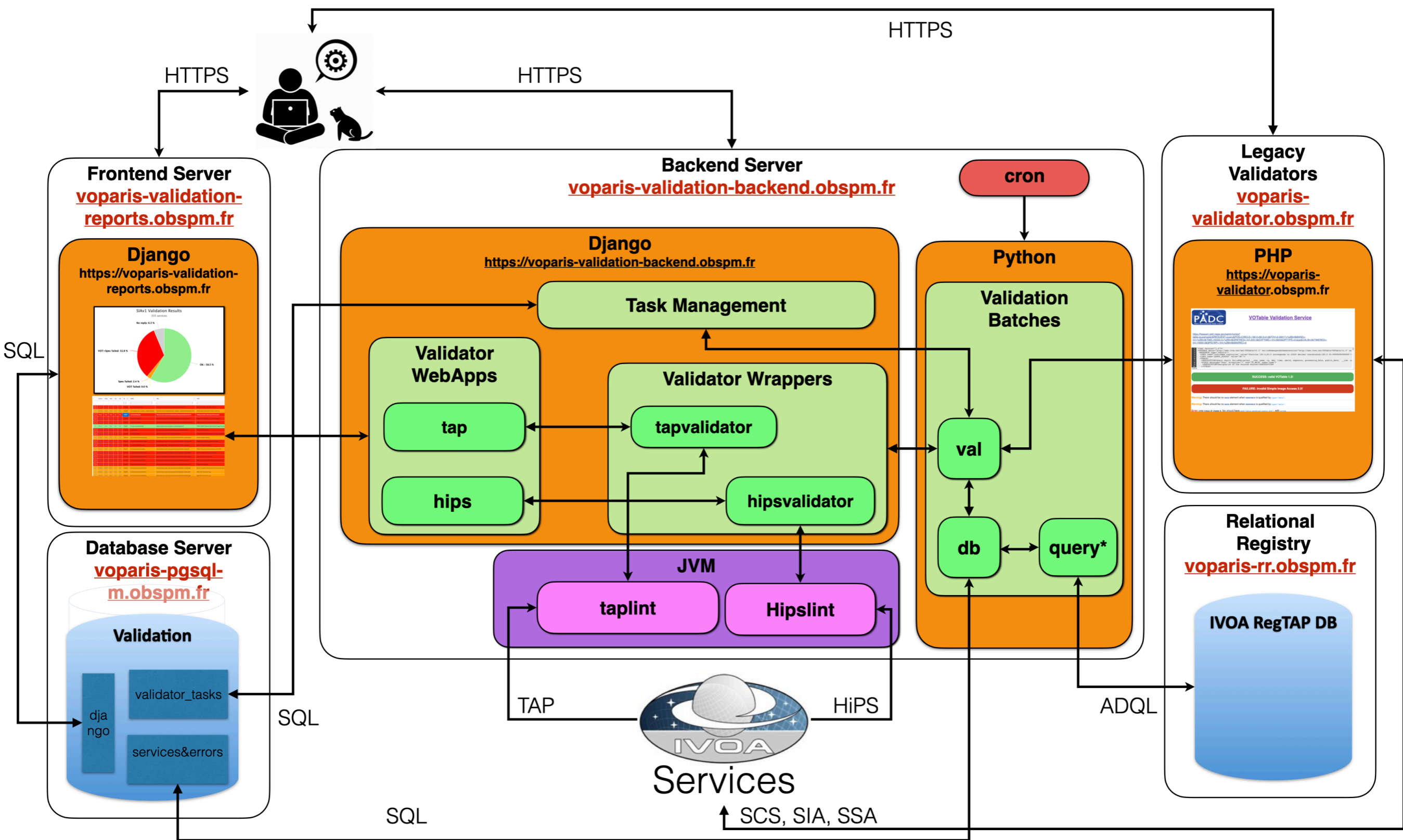
# Weather Report

Renaud Savalle, Pierre Le Sidaner

PADC, Observatoire de Paris, France

IVOA Interop Meeting - Bologna - 2023-05-08 - Operations IG

# PADC Validation Architecture (2022)

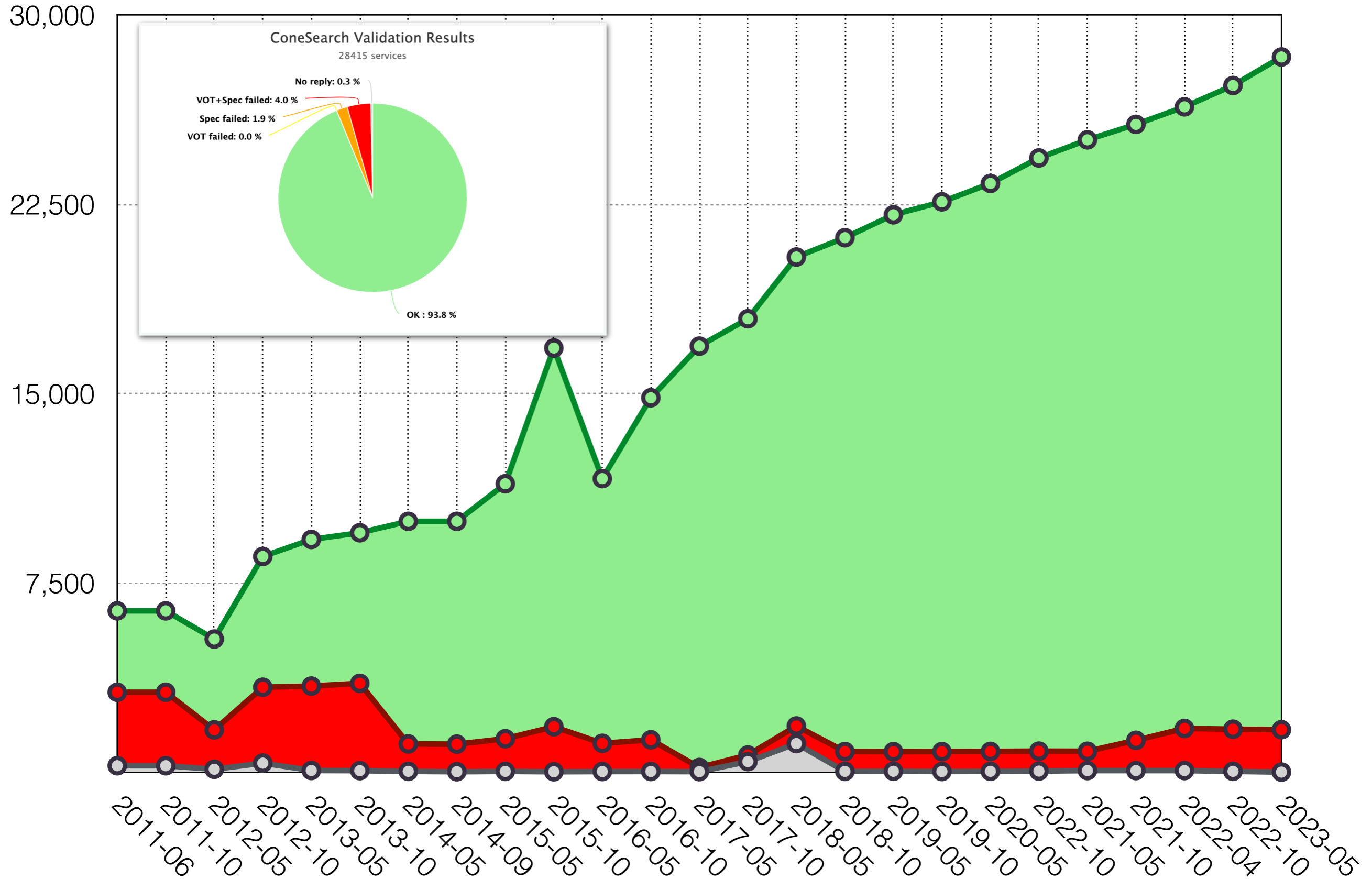
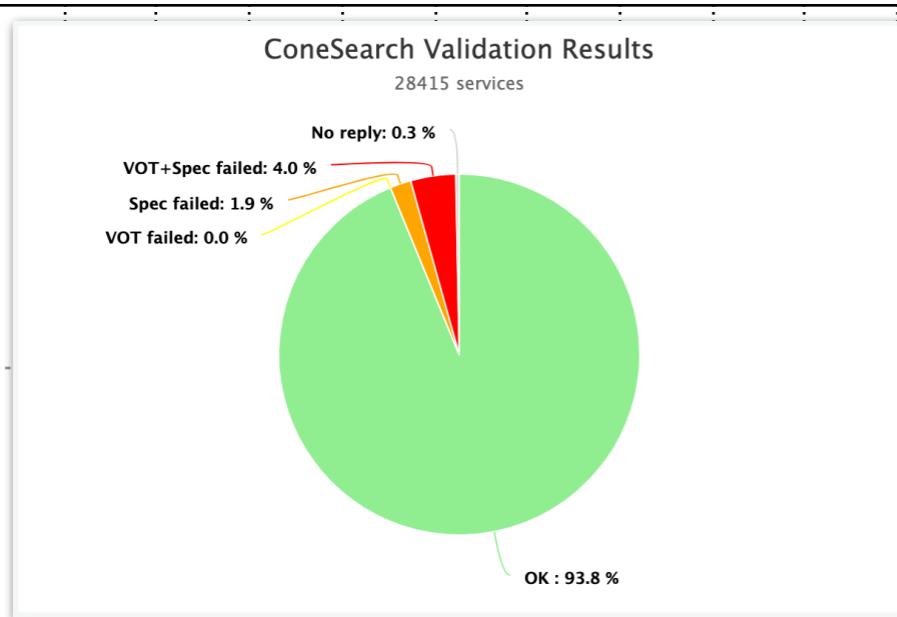


# ConeSearch History

○ Not Responding

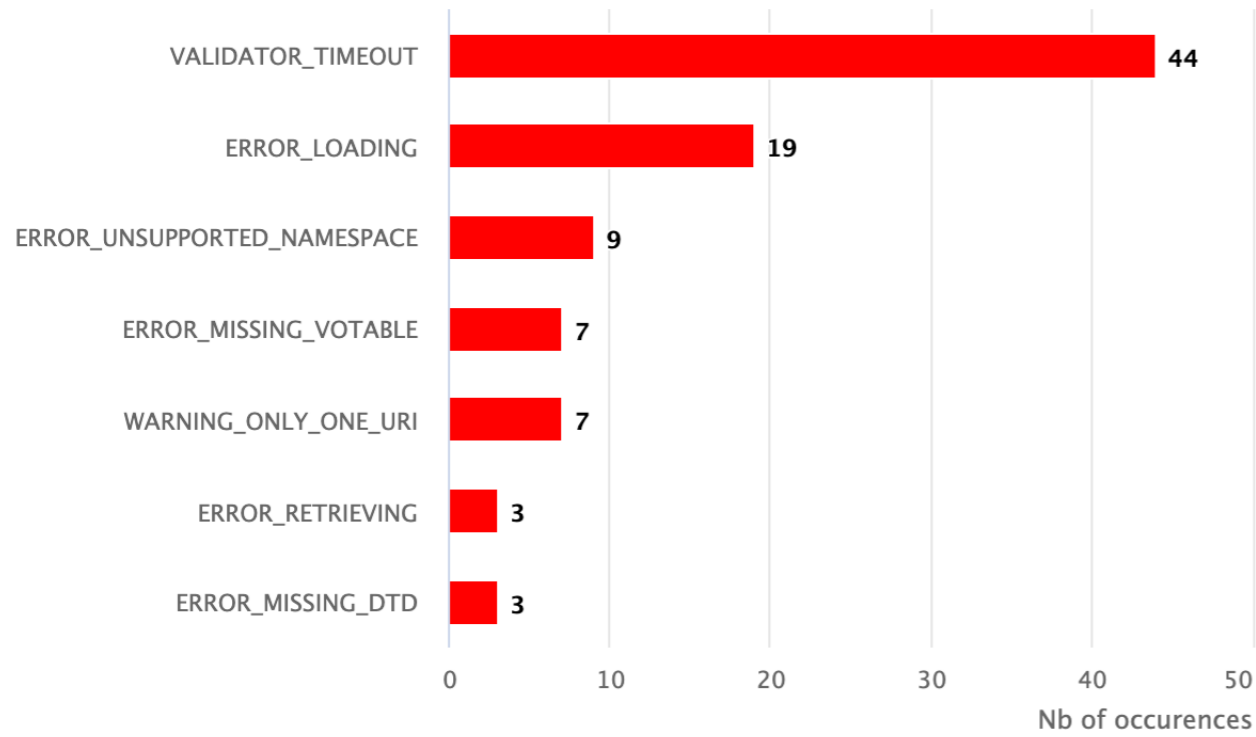
■ Error

○ Valid

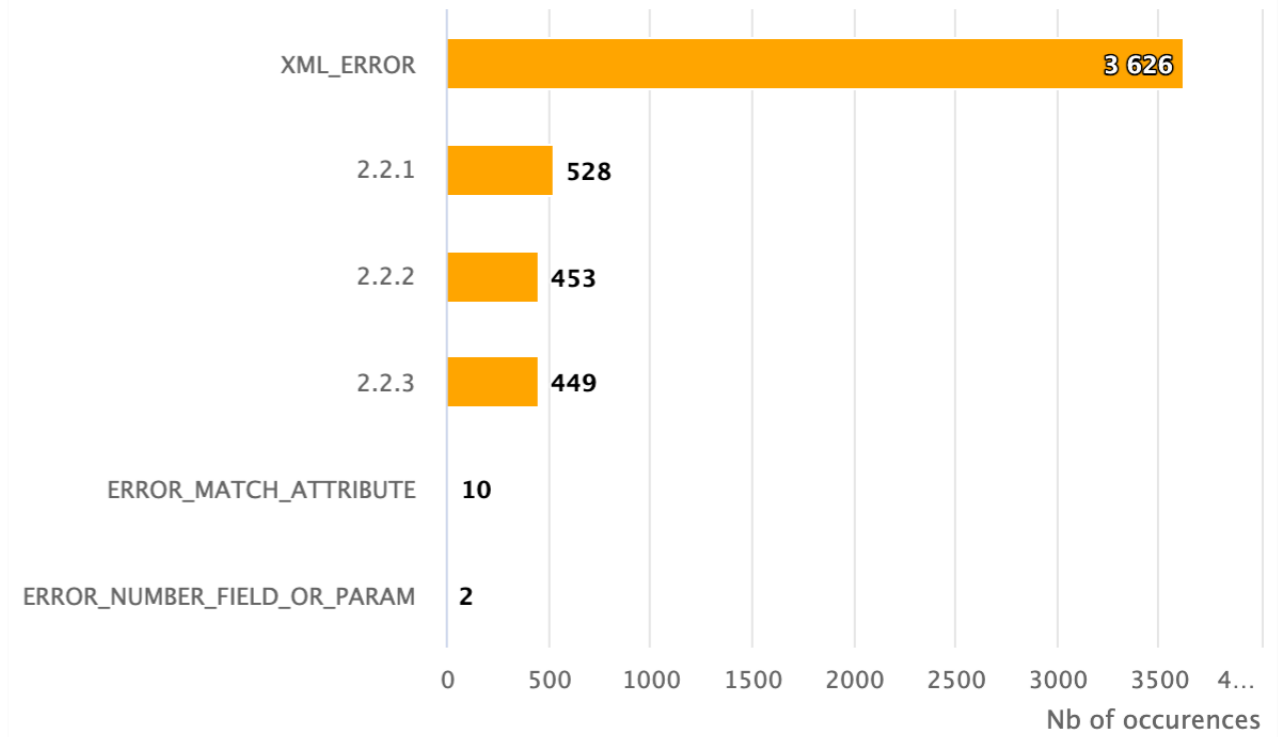


# 2023-05 SCS Error Frequencies

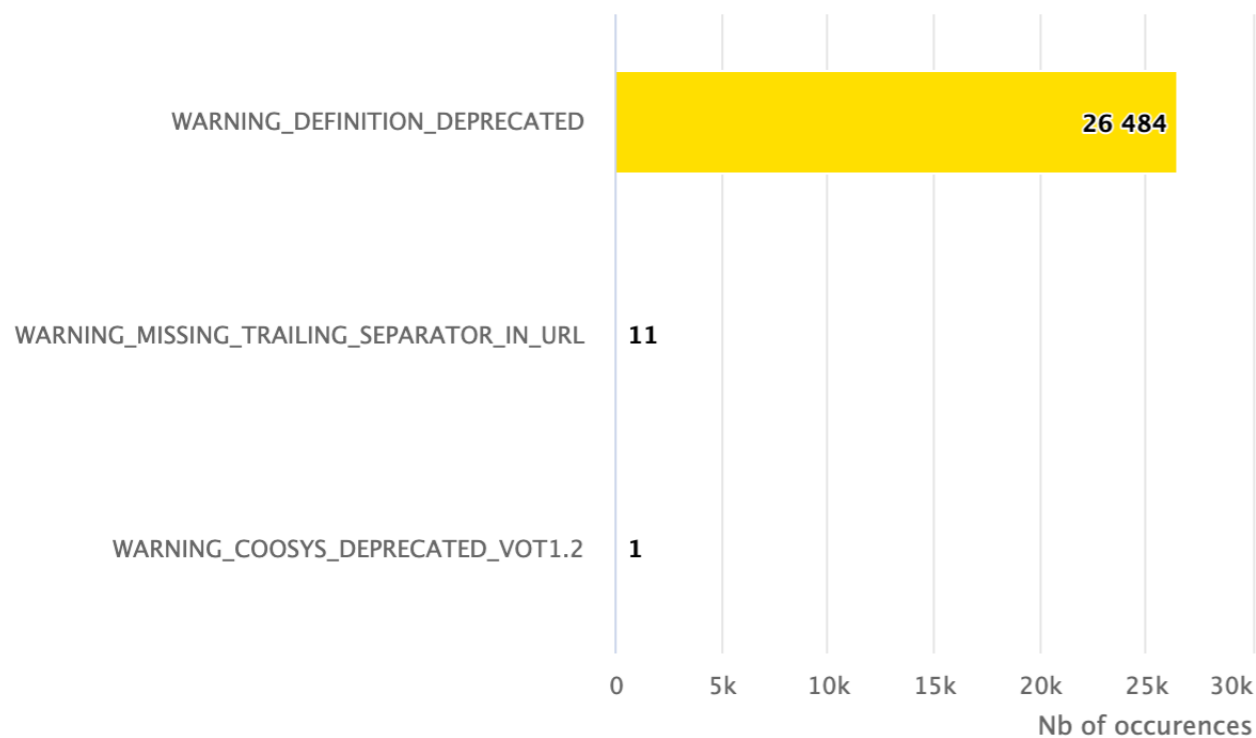
## ConeSearch Fatal Errors



## ConeSearch Errors

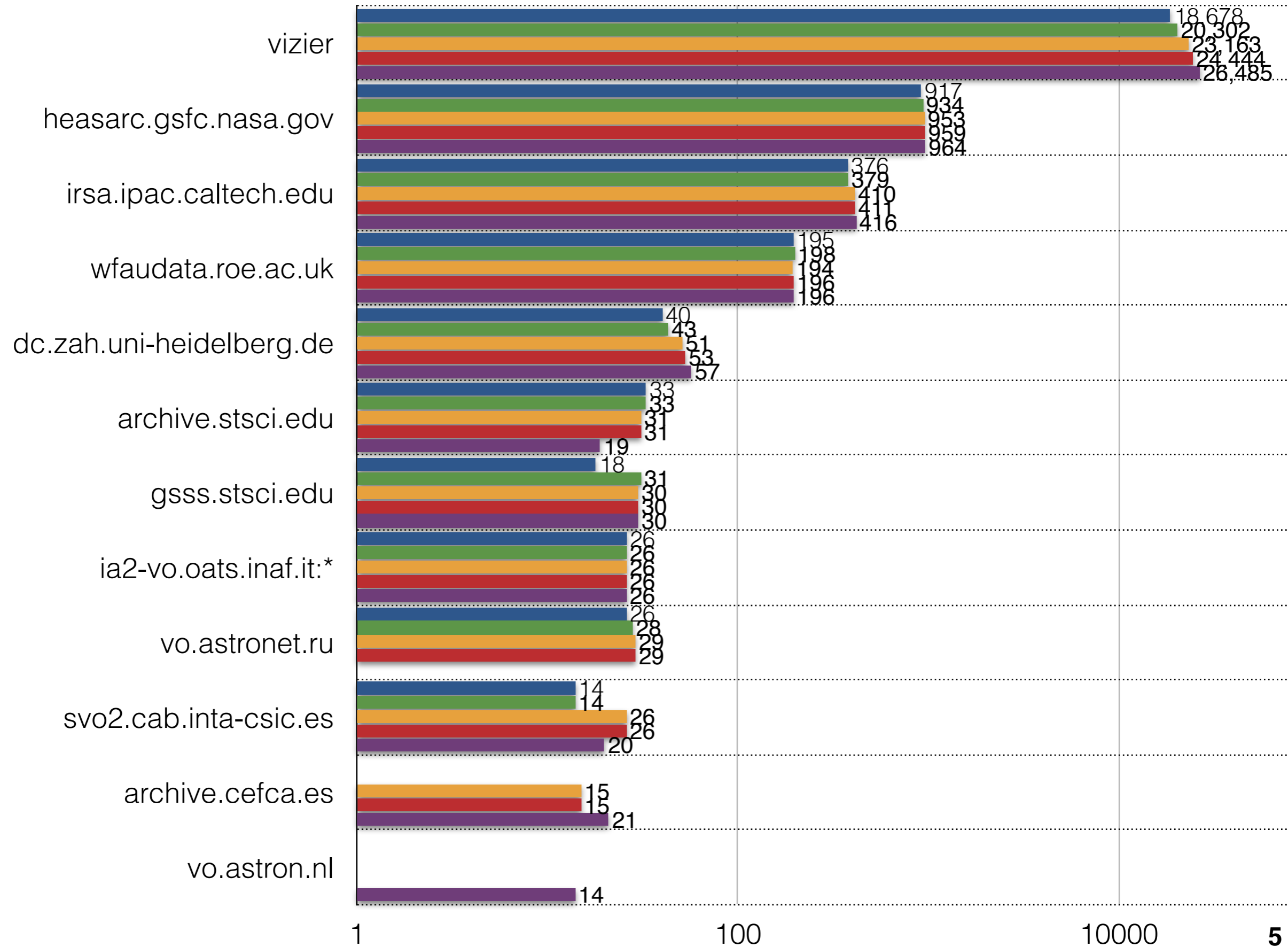


## ConeSearch Warnings



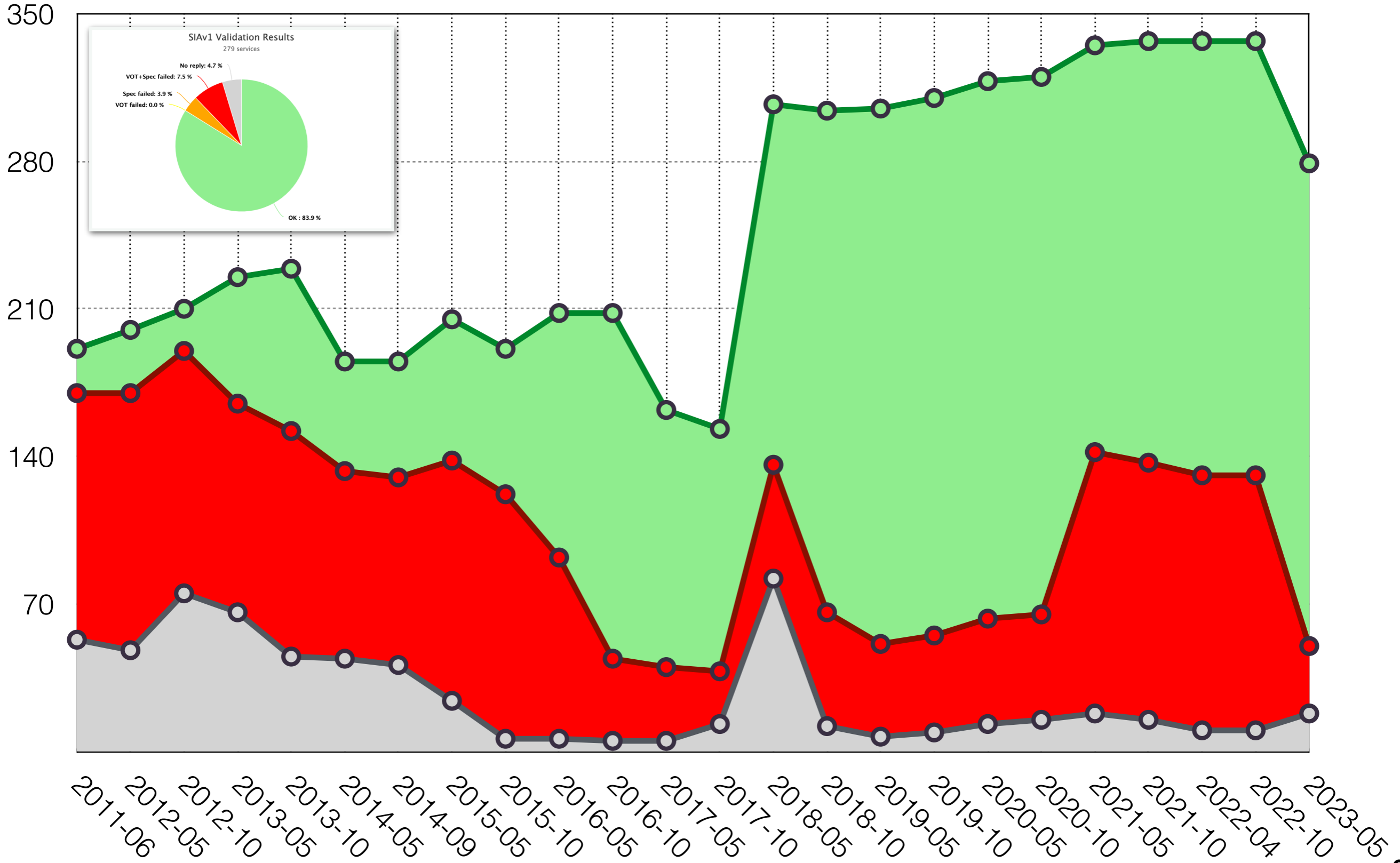
# TOP SCS Providers (N>10 **responding** services)

■ 2018-05  
 ■ 2019-05  
 ■ 2021-05  
 ■ 2022-04  
 ■ 2023-05



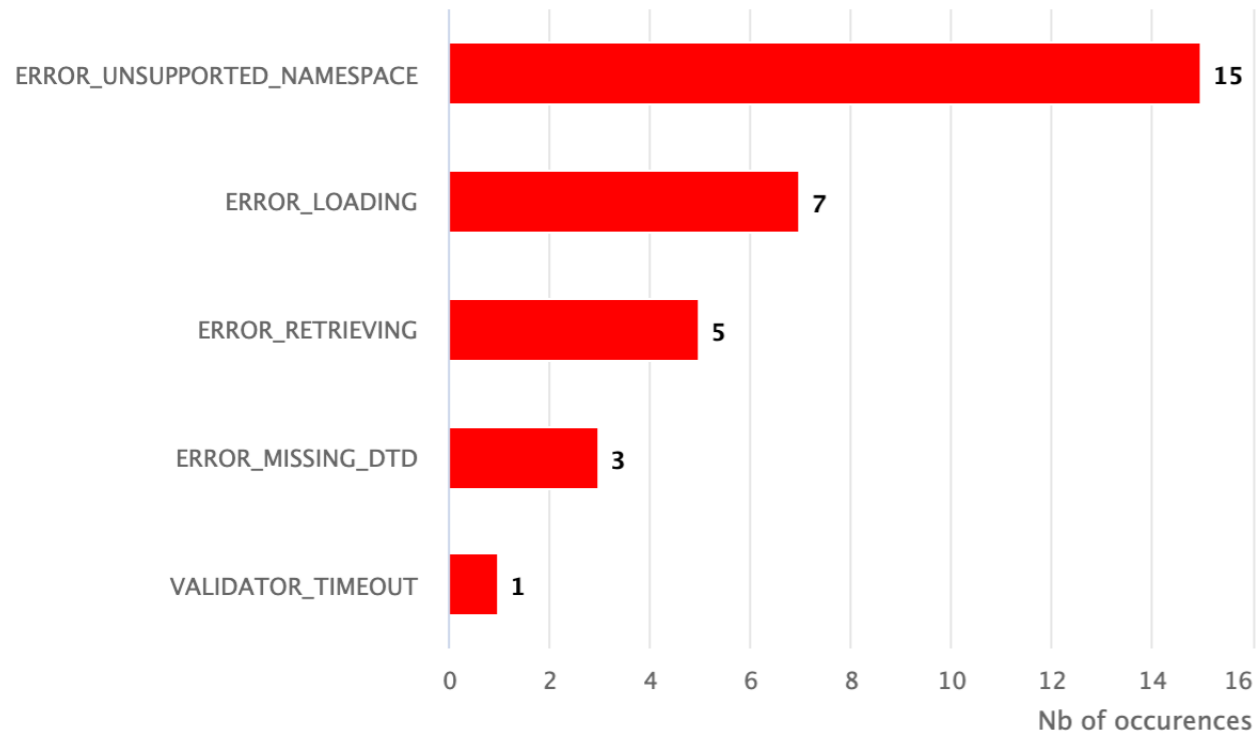
# SIAv1 History

○ Not Responding
● Error
○ Valid

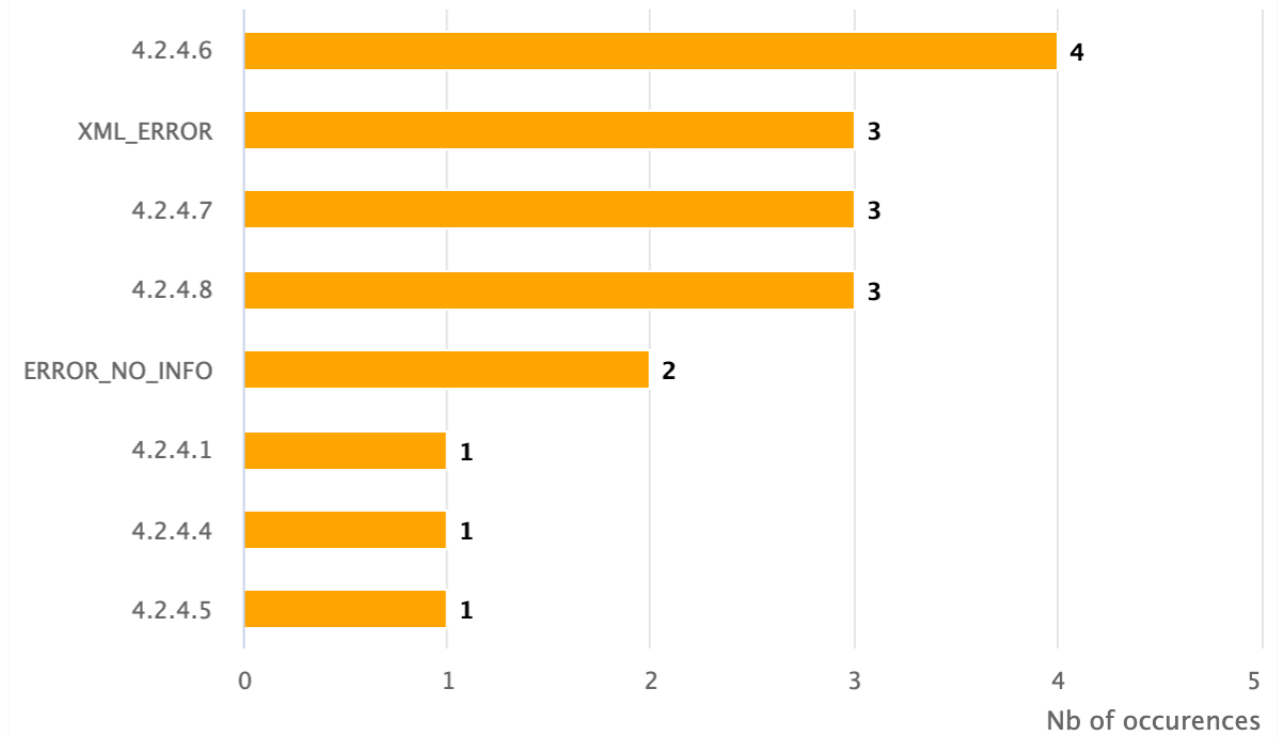


# 2023-05 SIAv1 Error Frequencies

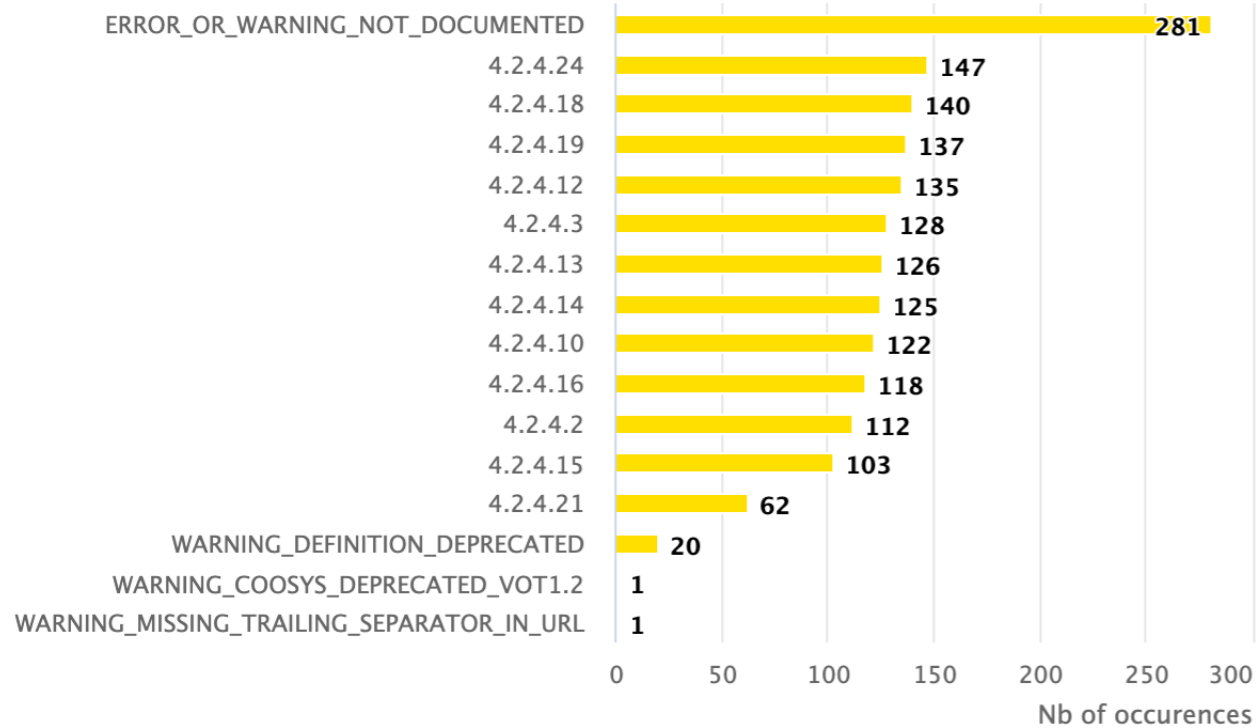
## SIAv1 Fatal Errors



## SIAv1 Errors

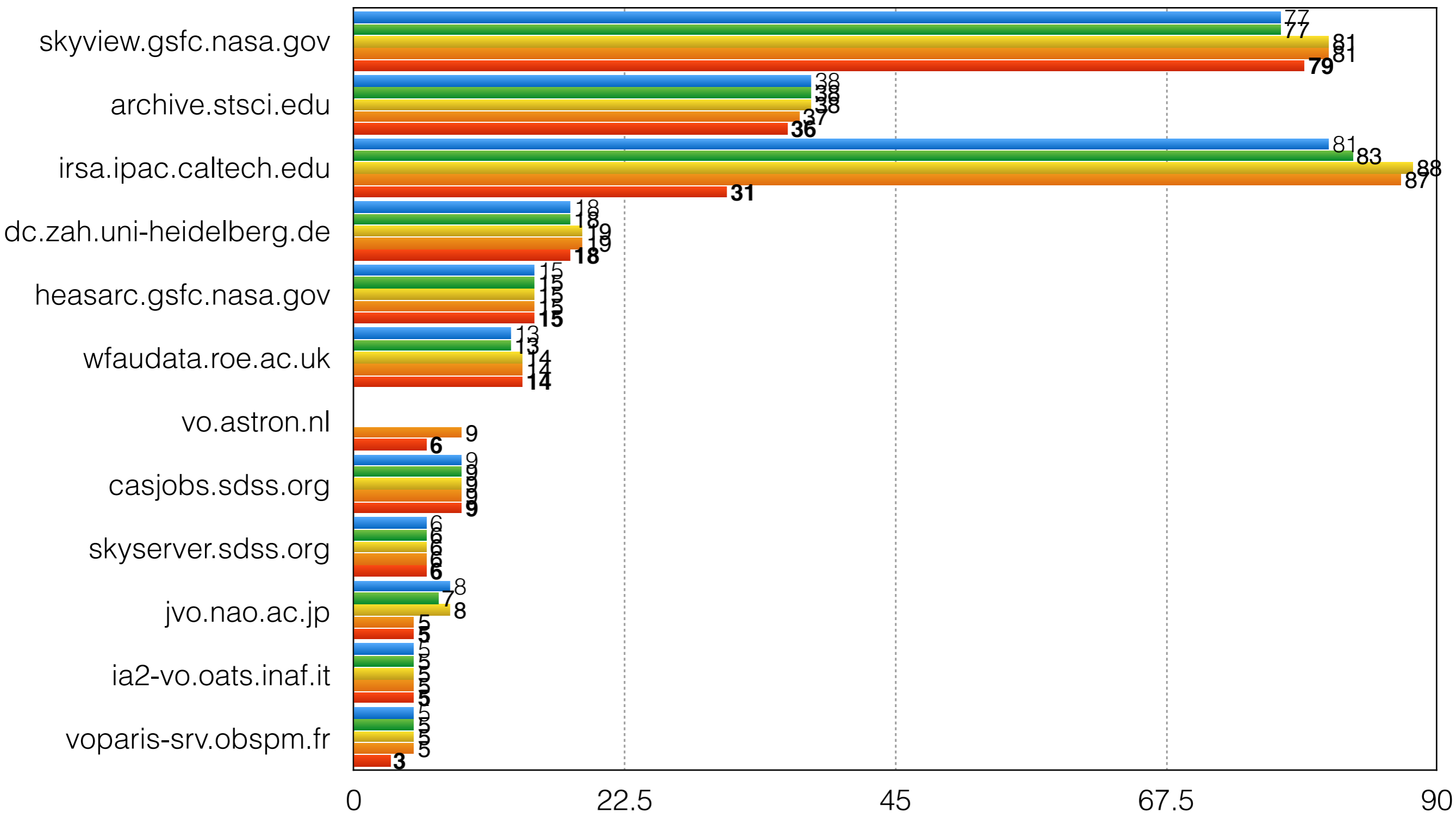


## SIAv1 Warnings



# TOP SIAv1 Providers (N>4 **responding** services)

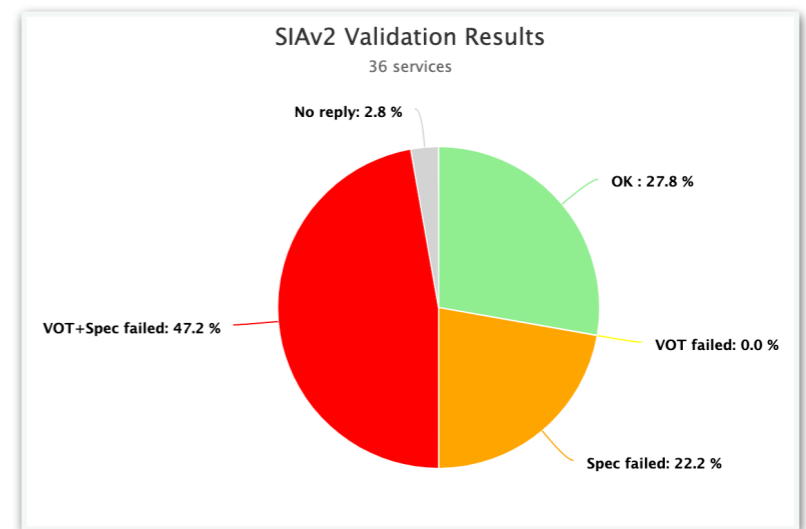
■ 2018-05   
 ■ 2019-05   
 ■ 2021-05   
 ■ 2022-04   
 ■ 2023-05



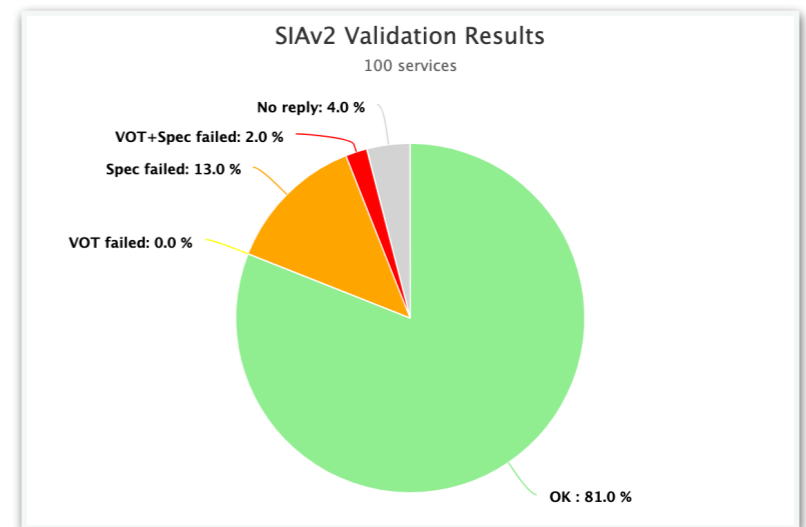


# SIAv2 History

- SIAv2 monitoring started in 2022 using PADDC validator
- 36 to **100 services on 15 servers** in 1 year



04/2022



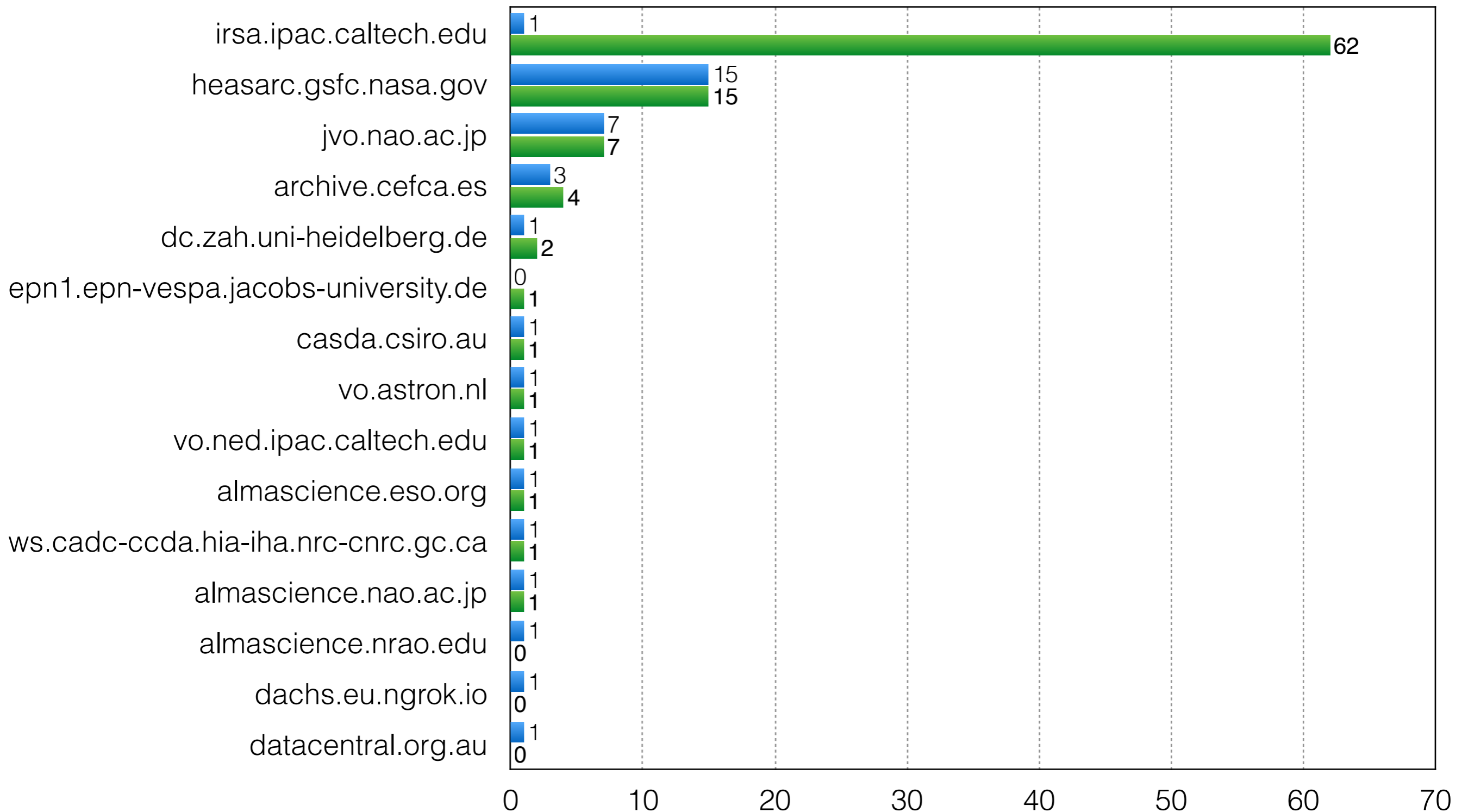
05/2023

# SIAv2 Providers

(**responding** services)

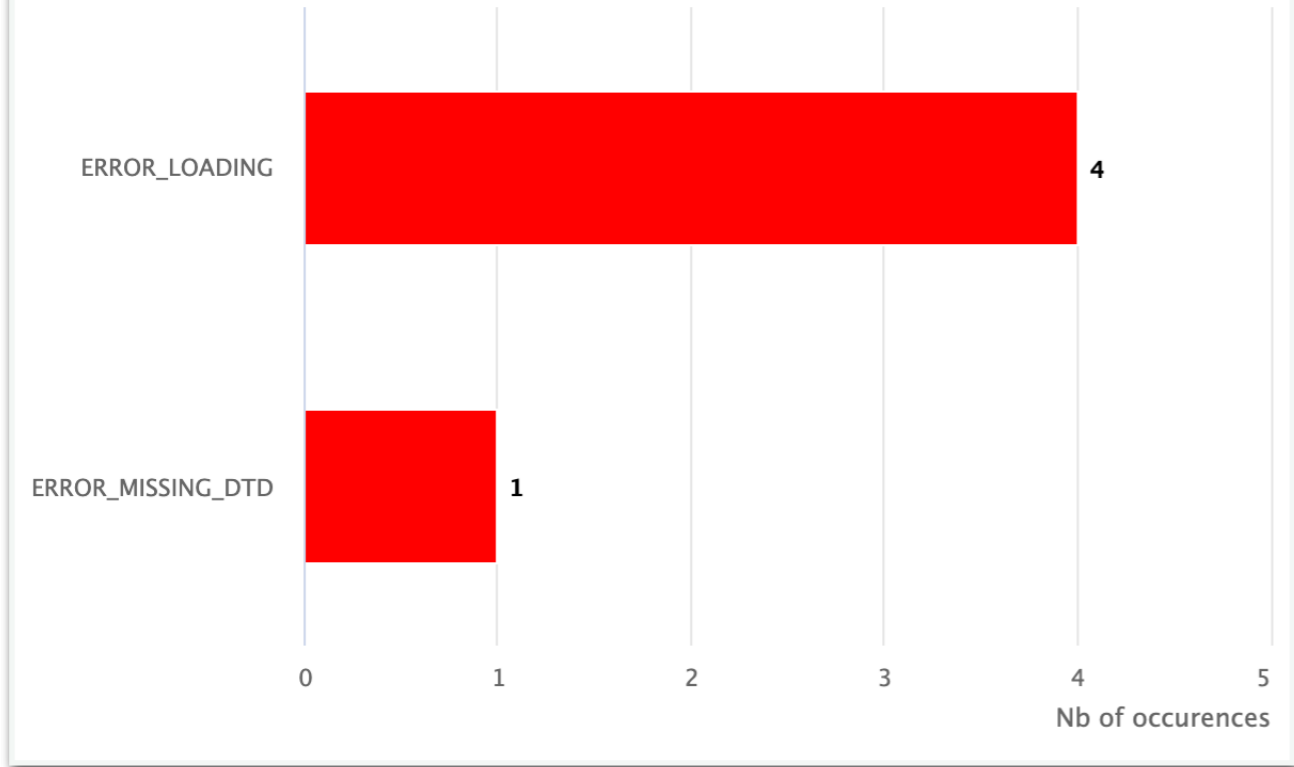
■ 2022-04

■ 2023-05

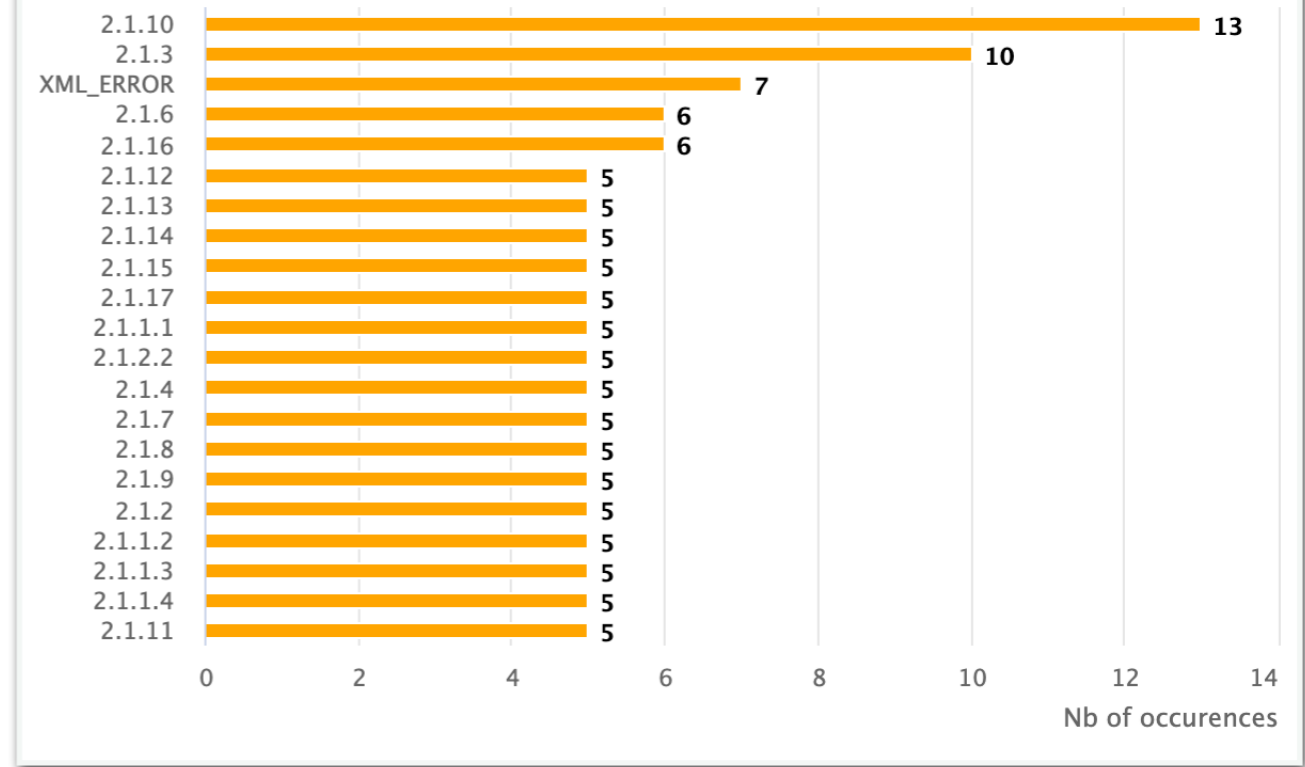


# 2023-05 SIAv2 Error Frequencies

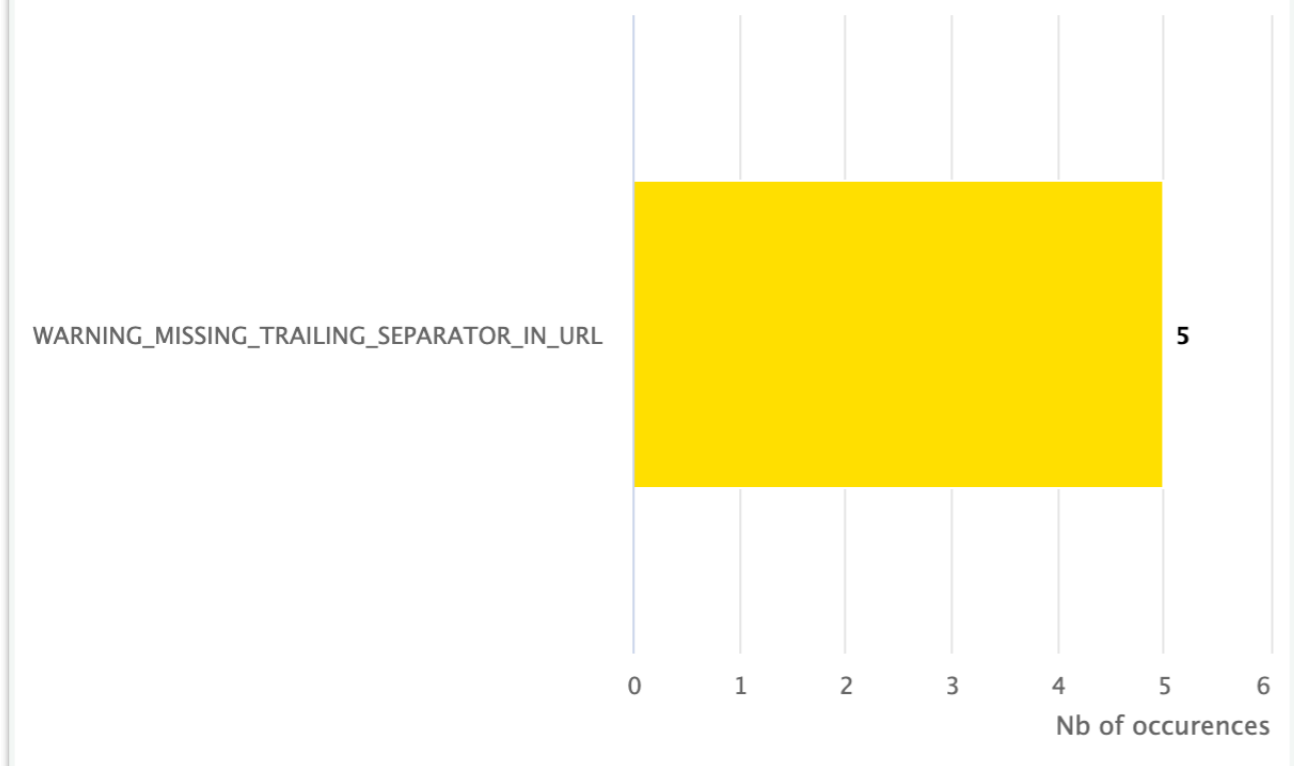
## SIAv2 Fatal Errors



## SIAv2 Errors

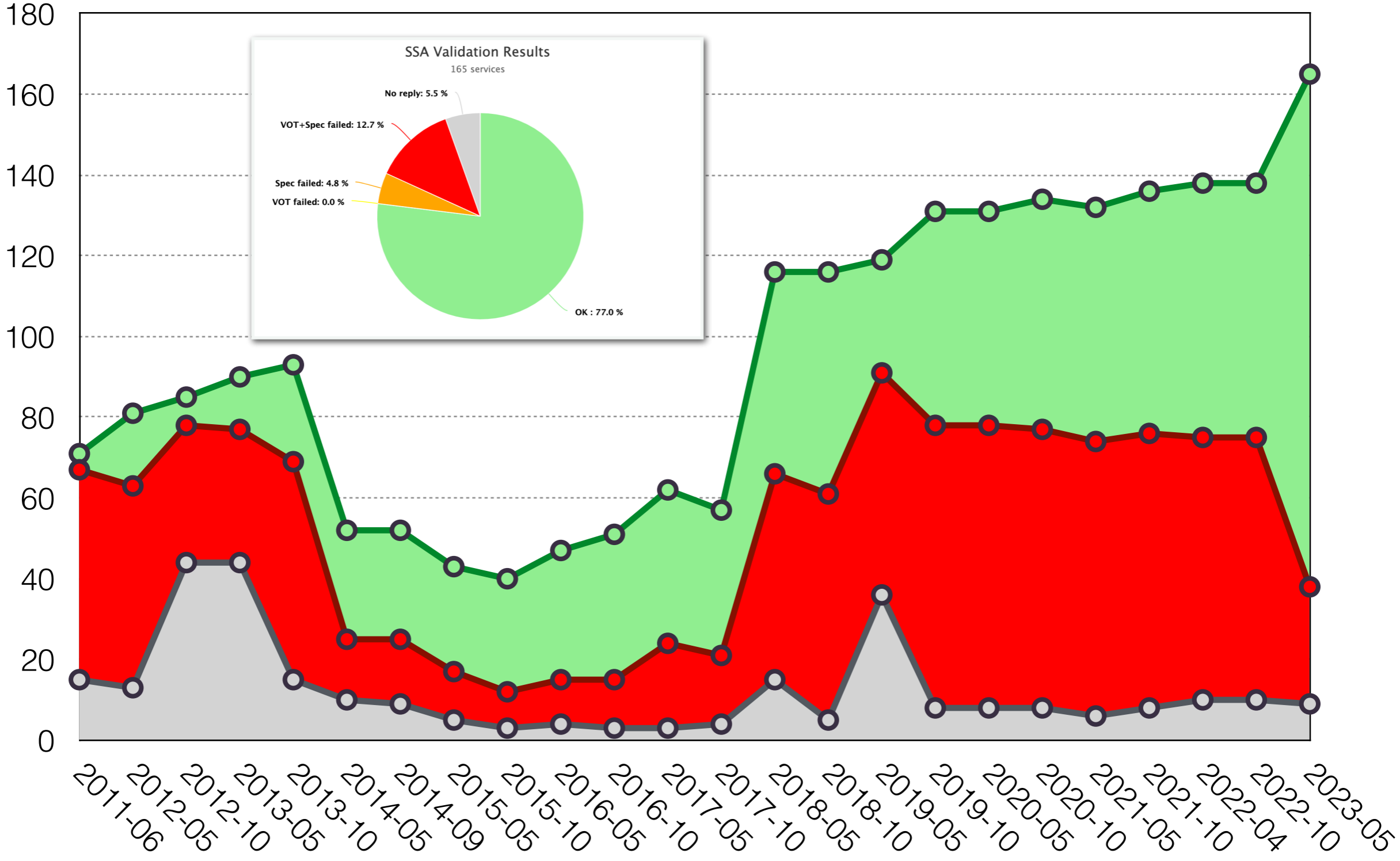


## SIAv2 Warnings



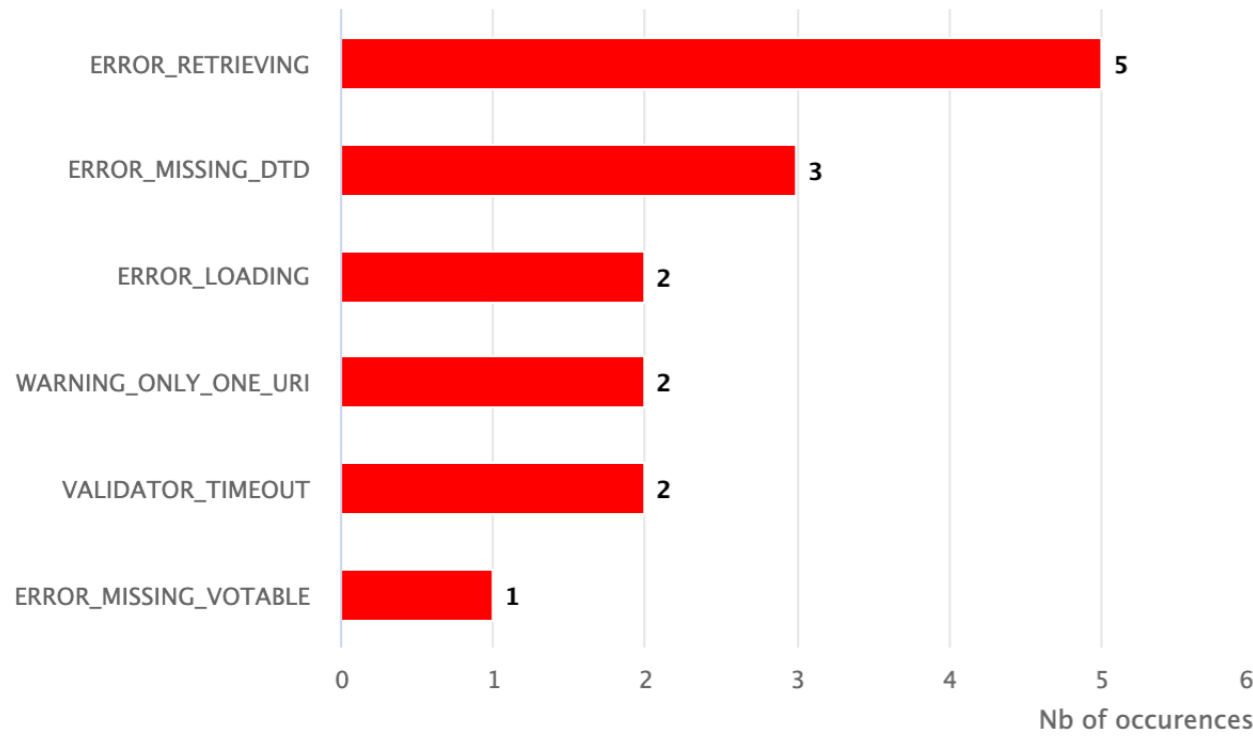
# SSA History

Not Responding
  Error
  Valid

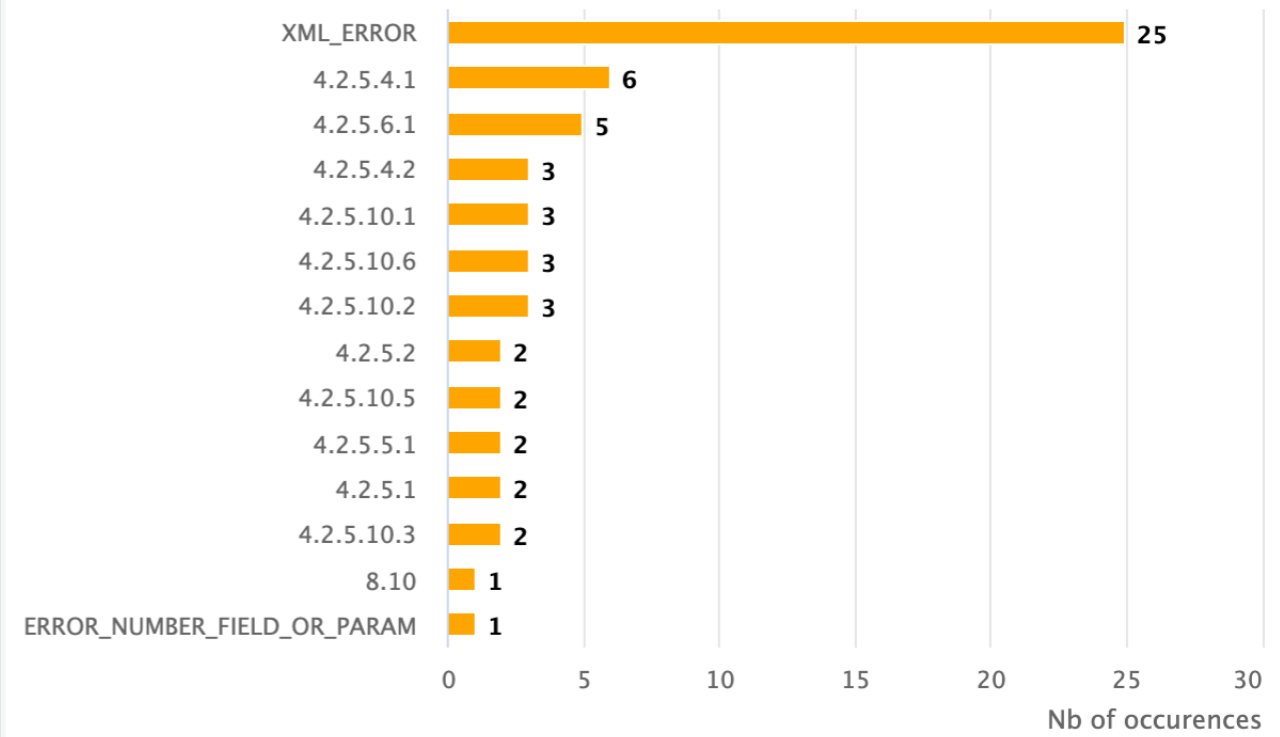


# 2023-05 SSA Error Frequencies

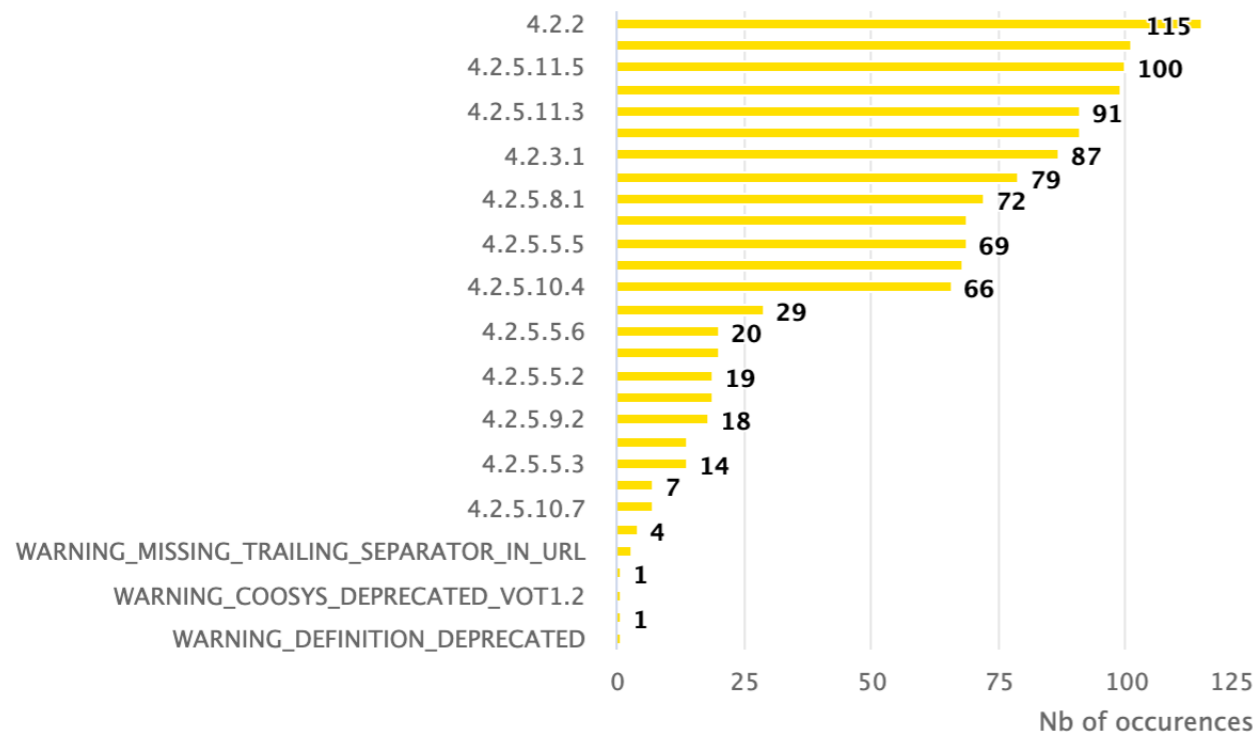
## SSA Fatal Errors



## SSA Errors



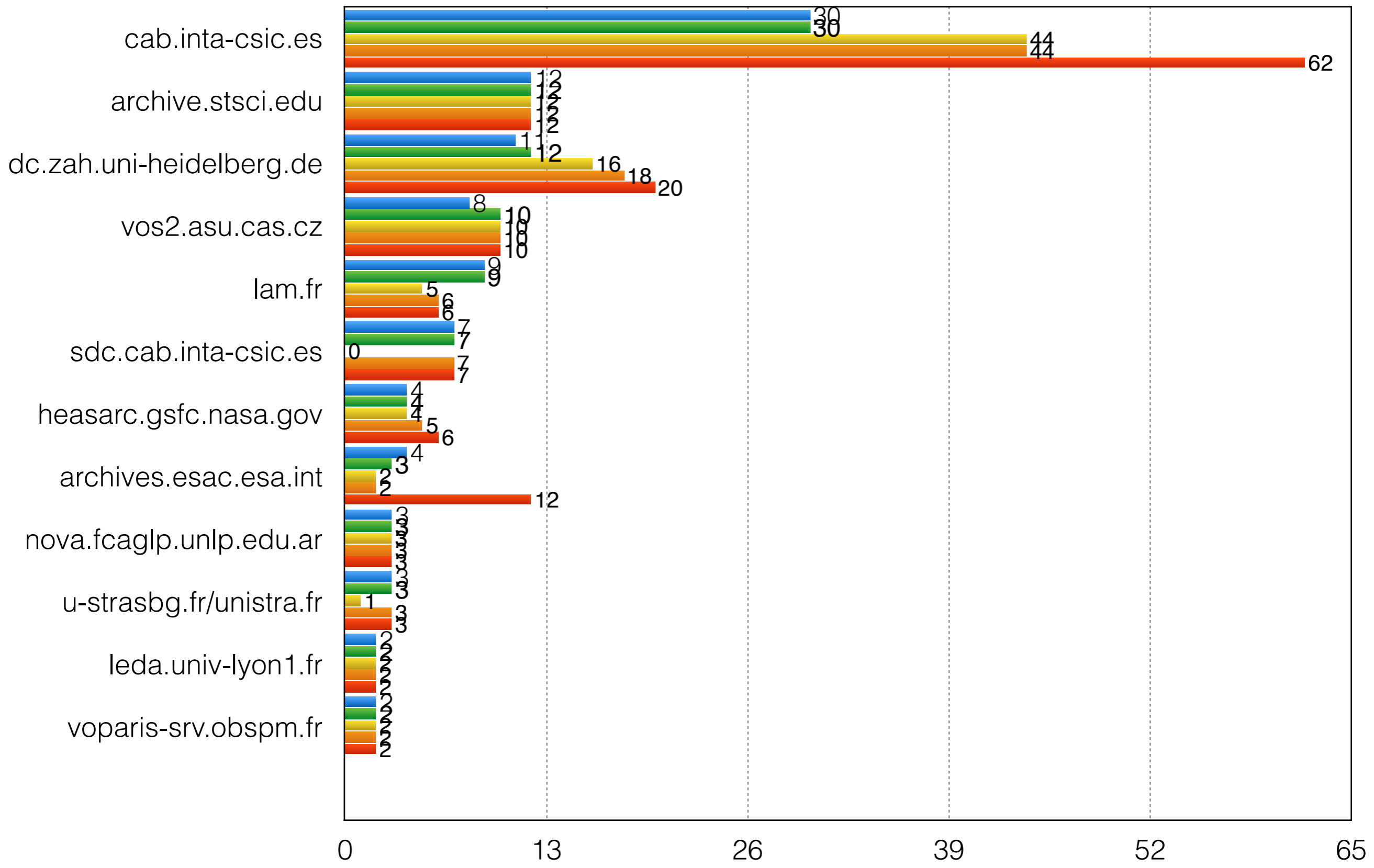
## SSA Warnings



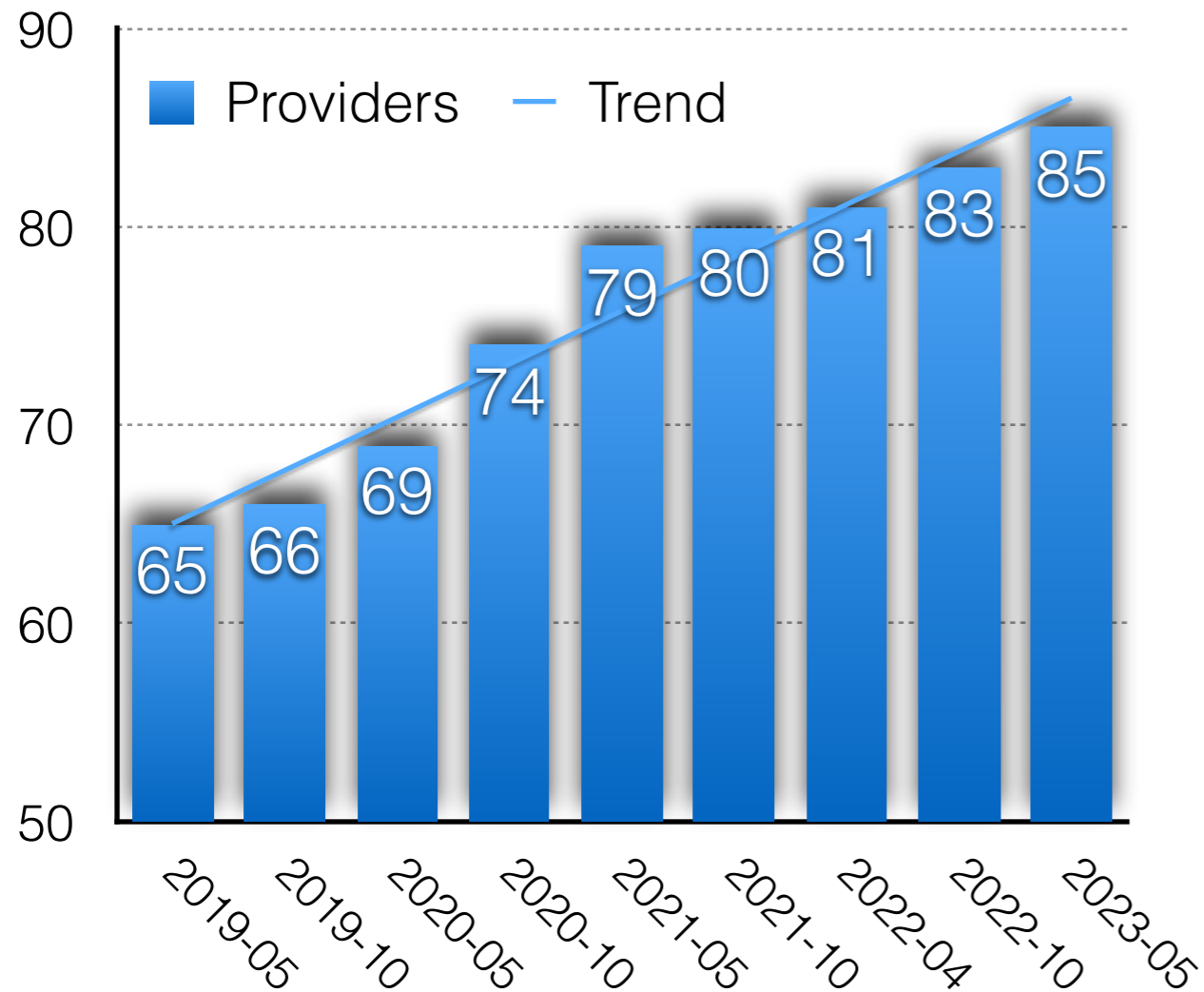
# TOP SSA Providers

(N > 1 service)

2018-05   2019-05   2021-05   2022-04   2023-05



# TAP Validation



- TAP Monitoring started in 2018, using Mark Taylor's STILT **taplint** program for validation
- Uptake: +30% in 4 years
- **25515 services** (tables)
  - *in* **143 collections** (services)
  - *on* **85 servers**

# TOP TAP Providers

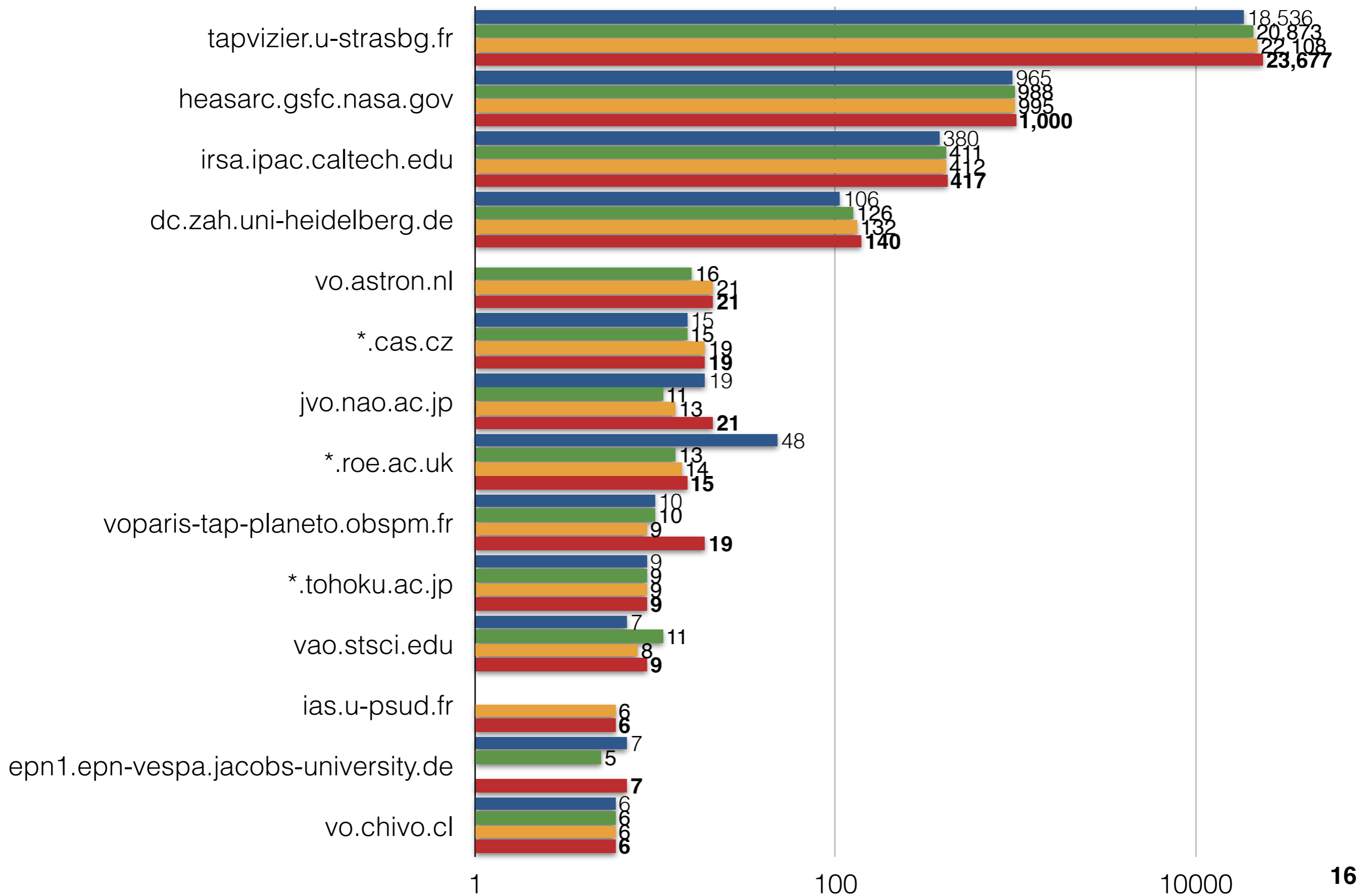
(> 5 services)

2019-05

2021-05

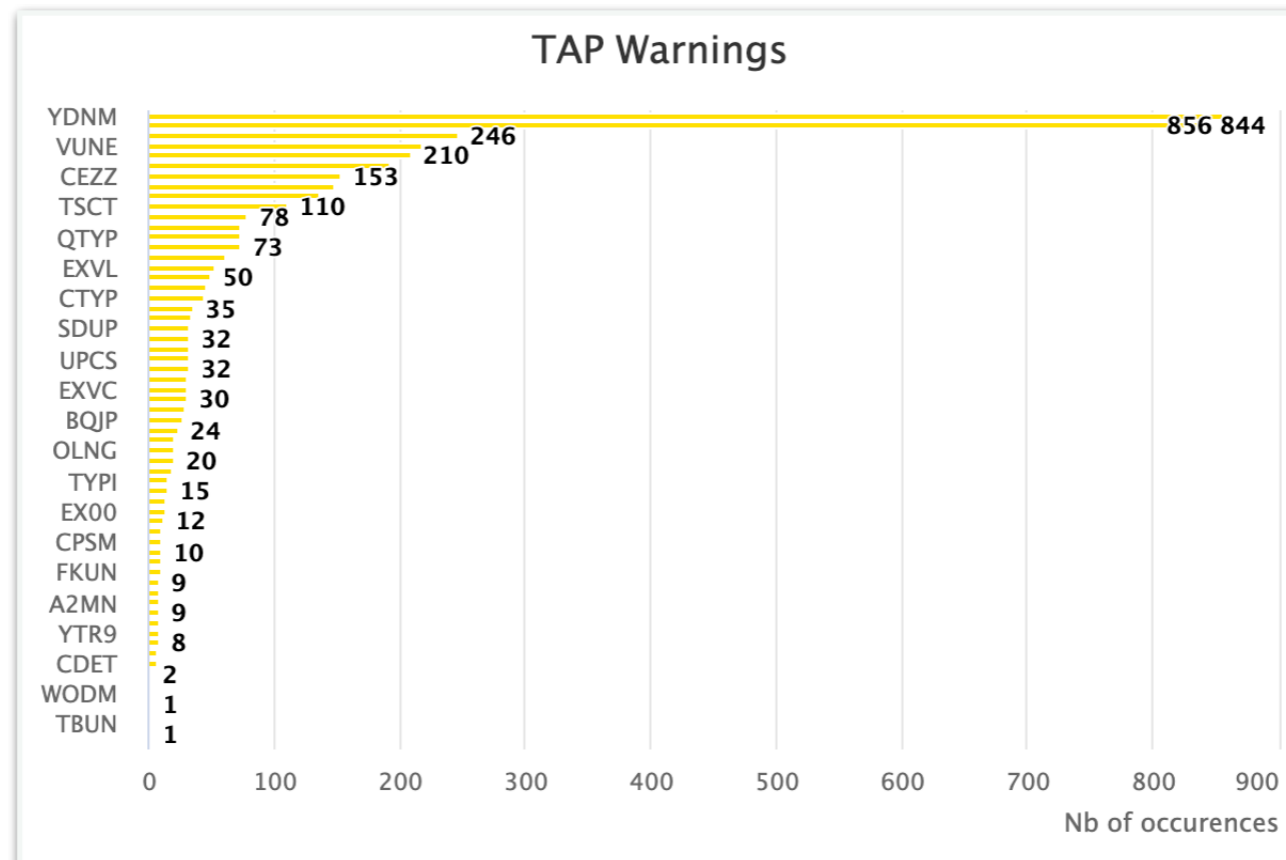
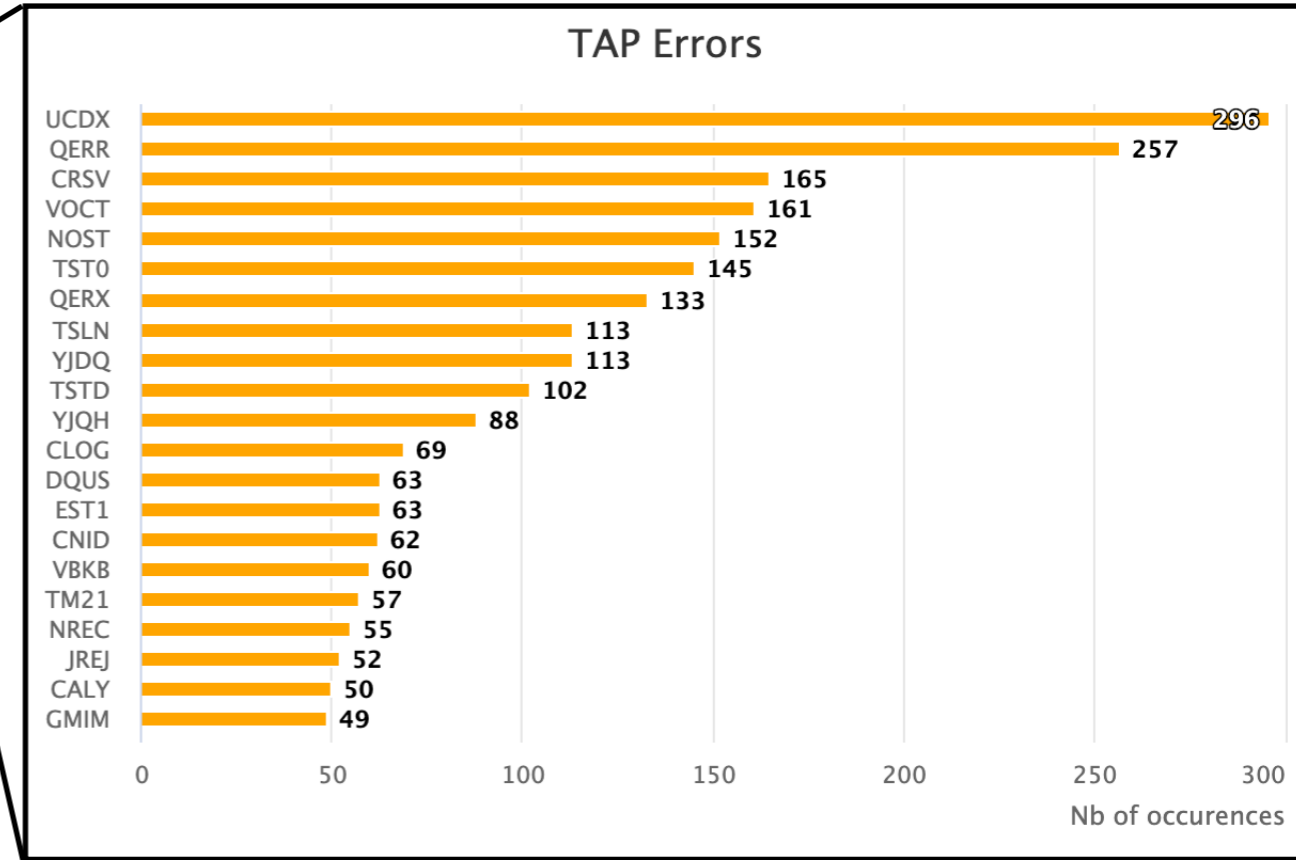
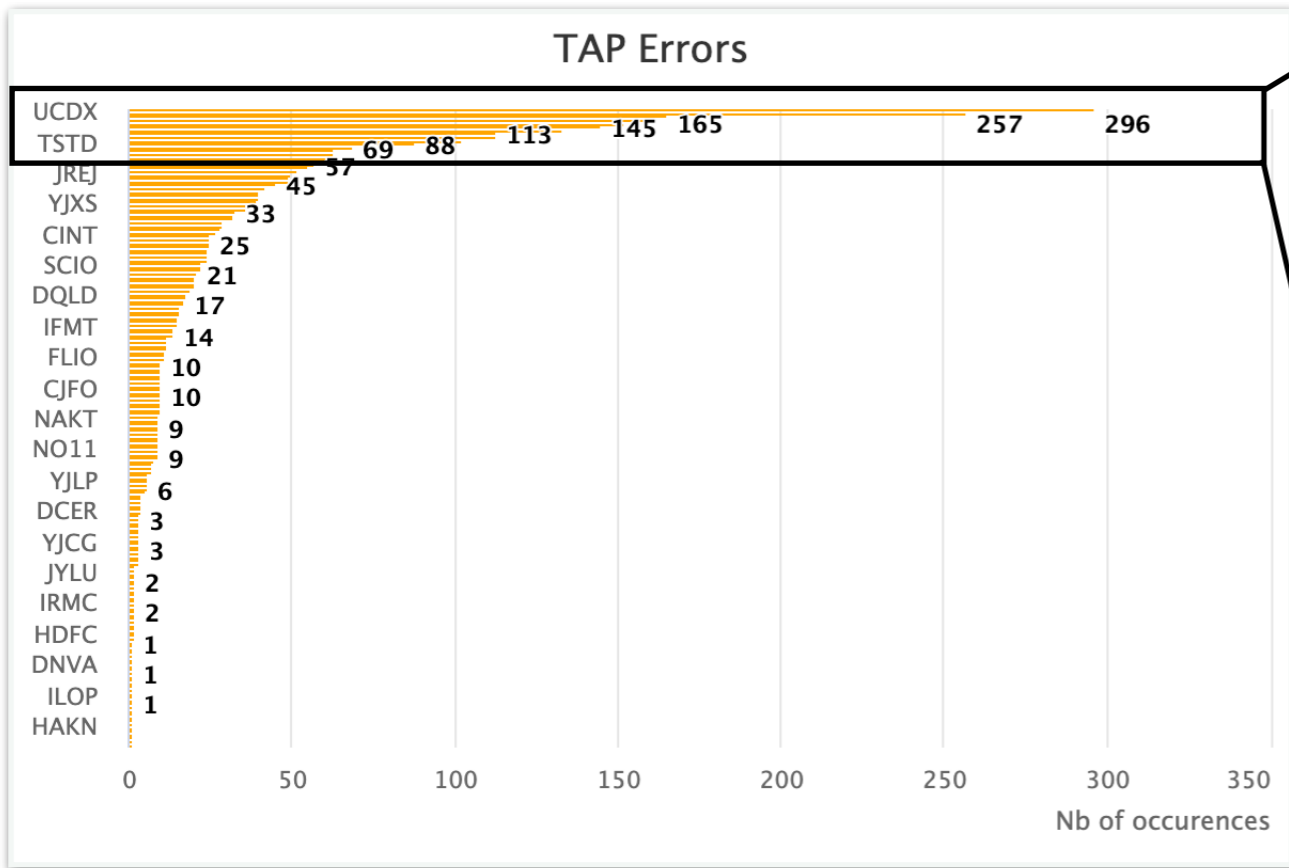
2022-04

2023-05





# 2022-04 TAP Error Frequencies





# EPN-TAP Web Validator

- A modified version of the TAP validator avail at <https://voparis-validation-reports.obspm.fr/>
- Input Parameters:
  - TME, TMS, TMC and **EPN** stages of taplint are pre-selected
  - New: List of tables to test

PAADC IVOA Services Validation Log in

Home ConeSearch SIA SSA TAP EPN-TAP HIPS

### EPN-TAP Validator

Service URL\*  Mode\*  Time-out (secs)\*  Format\*

Max tested tables  Max repetition for a message  List of tables to test (empty or \* for all)

Tests based on taplint version 3.4-7+/627567f2b by Mark Taylor. Command used:  
/usr/bin/java -jar stilts.jar taplint format=text stages="TME TMS TMC EPN" maxrepeat=100 tables="planets.epn\_core exoplanet.epn\_core" "http://voparis-tap-planeto.obspm.fr/\_

Validator ended. 00:12

```
S-TMS-FILT-001 Filter applied: 2/24 tables in 2/18 schemas
S-TMS-SUMM-001 Schemas: 2, Tables: 2, Columns: 197, Foreign Keys: 0
S-TMS-PLGS-001 Standard column flags: indexed: 2, principal: 197, std: 99
S-TMS-QNUM-001 Successful/submitted TAP queries: 30/30
S-TMS-QTIM-001 Average successful query time: 0.10s
Section TMC: Compare table metadata from /tables and TAP_SCHEMA
Section EPN: Test implementation of EPN-TAP tables
I-EPN-SCIM-001 Using standard TAP_SCHEMA tables for metadata
I-EPN-PNIX-001 Checking EPN-TAP table #1/2: exoplanet.epn_core
E-EPN-CUNI-001 Wrong Unit for exoplanet.epn_core column mass: "jupiterMass" != "kg"
I-EPN-QSUB-001 Submitting query: SELECT TOP 1 * FROM exoplanet.epn_core
I-EPN-QGET-001 Query GET URL: http://voparis-tap-planeto.obspm.fr/tap/sync?LANG=ADQL&QUERY=SELECT+TOP+1+*+FROM+exoplanet.epn_core
I-EPN-PNNS-001 76 non-standard columns in table exoplanet.epn_core (detection_type, publication_status, mass_error_min, mass_error_max, radius, radius_error_min, radius_error_max, sem
I-EPN-QSUB-002 Submitting query: SELECT TOP 1 granule_uid, time_min, time_max FROM exoplanet.epn_core WHERE (time_min IS NULL AND time_max IS NOT NULL) OR (time_min IS NOT NULL AND ti
I-EPN-QGET-002 Query GET URL: http://voparis-tap-planeto.obspm.fr/tap/sync?LANG=ADQL&QUERY=SELECT+TOP+1+granule_uid%2C+time_min%2C+time_max+FROM+exoplanet.epn_core+WHERE+%28time_min+I
I-EPN-QSUB-003 Submitting query: SELECT TOP 1 granule_uid, time_sampling_step_min, time_sampling_step_max FROM exoplanet.epn_core WHERE (time_sampling_step_min IS NULL AND time_sampli
I-EPN-QGET-003 Query GET URL: http://voparis-tap-planeto.obspm.fr/tap/sync?LANG=ADQL&QUERY=SELECT+TOP+1+granule_uid%2C+time_sampling_step_min%2C+time_sampling_step_max+FROM+exoplanet.
I-EPN-QSUB-004 Submitting query: SELECT TOP 1 granule_uid, time_exp_min, time_exp_max FROM exoplanet.epn_core WHERE (time_exp_min IS NULL AND time_exp_max IS NOT NULL) OR (time_exp_mi
I-EPN-QGET-004 Query GET URL: http://voparis-tap-planeto.obspm.fr/tap/sync?LANG=ADQL&QUERY=SELECT+TOP+1+granule_uid%2C+time_exp_min%2C+time_exp_max+FROM+exoplanet.epn_core+WHERE+%28ti
I-EPN-QSUB-005 Submitting query: SELECT TOP 1 granule_uid, spectral_range_min, spectral_range_max FROM exoplanet.epn_core WHERE (spectral_range_min IS NULL AND spectral_range_max IS N
I-EPN-QGET-005 Query GET URL: http://voparis-tap-planeto.obspm.fr/tap/sync?LANG=ADQL&QUERY=SELECT+TOP+1+granule_uid%2C+spectral_range_min%2C+spectral_range_max+FROM+exoplanet.epn_core
I-EPN-QSUB-006 Submitting query: SELECT TOP 1 granule_uid, spectral_sampling_step_min, spectral_sampling_step_max FROM exoplanet.epn_core WHERE (spectral_sampling_step_min IS NULL AND
I-EPN-QGET-006 Query GET URL: http://voparis-tap-planeto.obspm.fr/tap/sync?LANG=ADQL&QUERY=SELECT+TOP+1+granule_uid%2C+spectral_sampling_step_min%2C+spectral_sampling_step_max+FROM+ex
I-EPN-QSUB-007 Submitting query: SELECT TOP 1 granule_uid, spectral_resolution_min, spectral_resolution_max FROM exoplanet.epn_core WHERE (spectral_resolution_min IS NULL AND spectral
I-EPN-QGET-007 Query GET URL: http://voparis-tap-planeto.obspm.fr/tap/sync?LANG=ADQL&QUERY=SELECT+TOP+1+granule_uid%2C+spectral_resolution_min%2C+spectral_resolution_max+FROM+exoplane
I-EPN-QSUB-008 Submitting query: SELECT TOP 1 granule_uid, c1min, c1max FROM exoplanet.epn_core WHERE (c1min IS NULL AND c1max IS NOT NULL) OR (c1min IS NOT NULL AND c1max IS NULL)
I-EPN-QGET-008 Query GET URL: http://voparis-tap-planeto.obspm.fr/tap/sync?LANG=ADQL&QUERY=SELECT+TOP+1+granule_uid%2C+c1min%2C+c1max+FROM+exoplanet.epn_core+WHERE+%28c1min+IS+NULL+AN
I-EPN-QSUB-009 Submitting query: SELECT TOP 1 granule_uid, c2min, c2max FROM exoplanet.epn_core WHERE (c2min IS NULL AND c2max IS NOT NULL) OR (c2min IS NOT NULL AND c2max IS NULL)
```

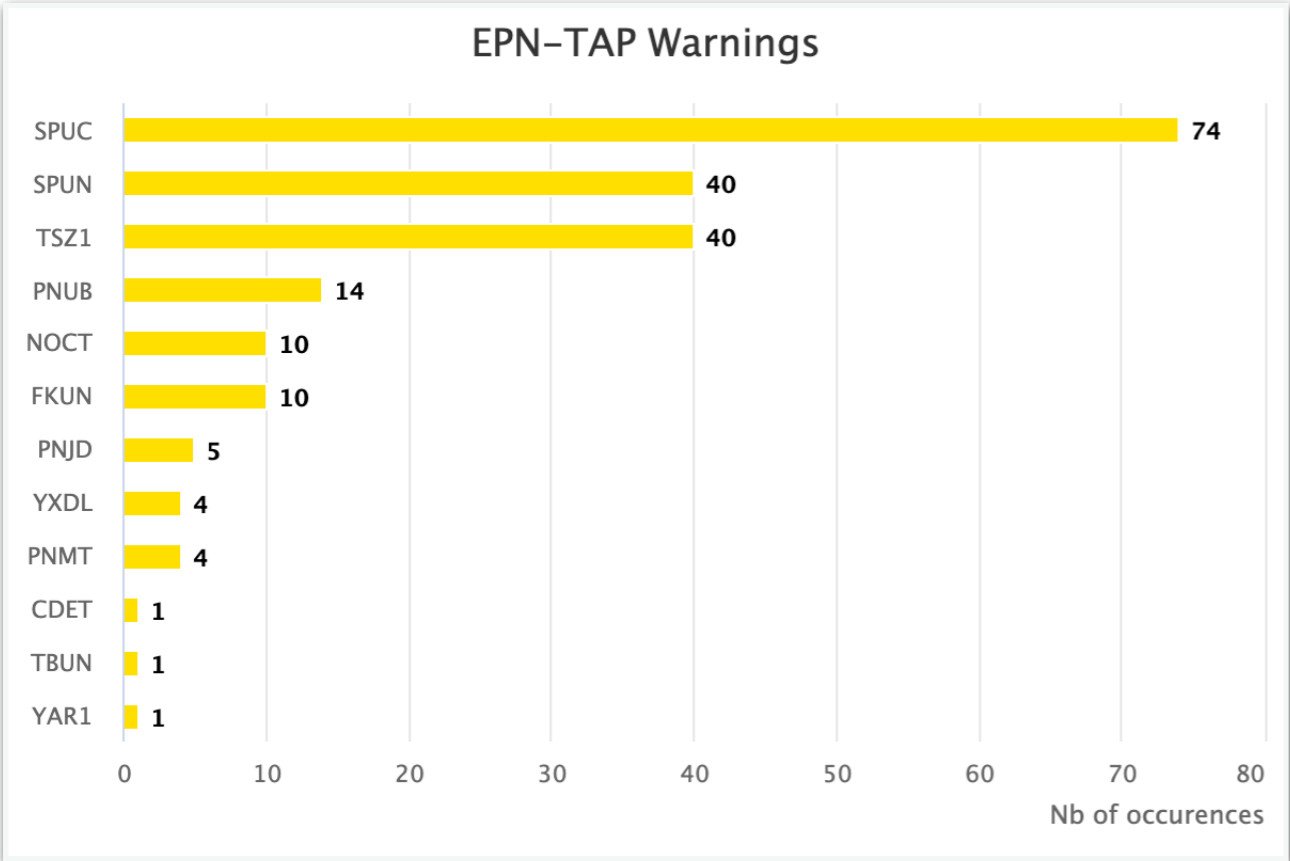
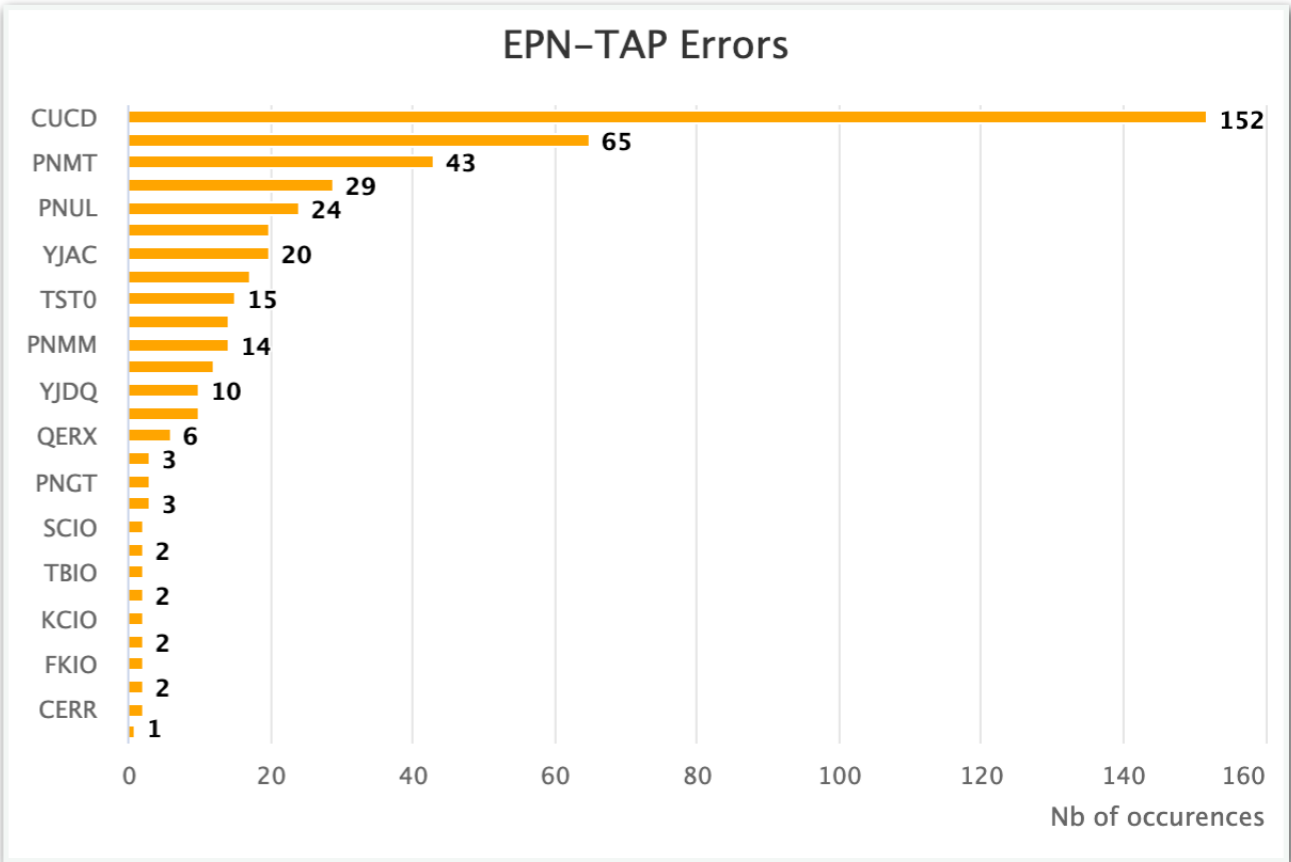
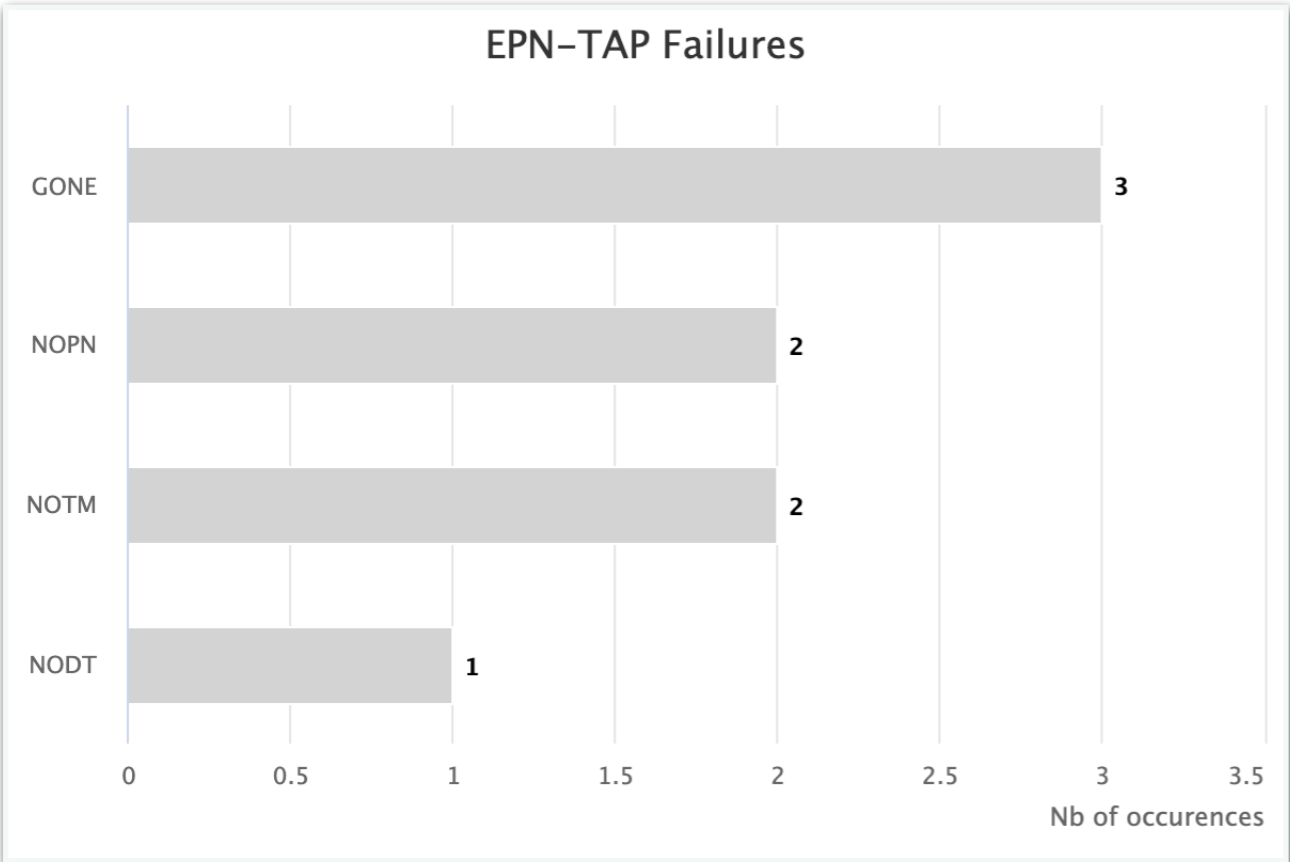


# EPN-TAP Validation



- Collaboration with Virtual European Solar and Planetary Access project
- **Monitoring** started in 2023-03, using the EPN-TAP validator
  - Spec 1: Validation of **all** tables for each service (vs TAP)
  - Spec 2: Services collected from Registry **and** VESPA's internal registry
- Results: **291 tables** on **40 services** hosted on **30 servers**
- **Current issues**
  - PPI: with 166 tables recently disappeared from Registry?
  - Different registered URLs for same service makes counting difficult  
ex: /tap vs /\_\_system\_\_/tap/run/tap

# 2023-05 EPN-TAP Error Frequencies



# 2023-05 EPN-TAP Errors Analysis

## 1. Wrong UCD and Units vs EPN-TAP standard

- NB: they generate ERRORS in taplint (strict application of std) but only WARNINGS in astropy
- **CUCD** = Wrong UCD (vs the correct one defined in std)
  - ex: *Wrong UCD for ... column time\_sampling\_step\_min: "time.interval;stat.min" != "time.resolution;stat.min"*
- **CUNI** = Wrong Unit
  - ex: *Wrong Unit for ... column pressure: "1e5Pa" != "bar"*
- Cause: UCDs and Units entered manually, and have changed in new version of std. Advice: use new DaCHS mixin

## 2. Bad UCDs:

- **PNMT** with **BAD\_SEQUENCE**: bad combination of UCDs in a sequence
  - ex: *Bad UCD "obs.image" in ... column measurement\_type (BAD\_SEQUENCE: UCD starting with a SECONDARY UCD word: "obs.image"! Such words can NOT be in first position.)*
- **PNMT** with **UNKNOWN\_WORD** ex: *"Bad UCD "phys.flux.density;phys.count;phys.electron" in ... column measurement\_type (UNKNOWN\_WORD: 2 not recognised UCD words: "phys.flux.density" (closest: "phot.flux.density"), "phys.count" (closest: "phot.count"))*
- Cause: not provided by DaCHS mixin. Advice: check legal UCDs and validate your service with taplint before publication

## 3. **PNST**

- ex: Column service\_title in chrotel.epn\_core is not consistently equal to "chrotel" (e.g. "ChroTel images")
- Cause: col service\_title must be the schema name / Advice: update DaCHS (unless VizieR or PSA) and use \schema in q.rd

## 4. **PNUL**: Important date columns for embargo and mirror management are not specified !

- ex: NULL values in non-nullable col pour modification\_date, release\_date, creation\_date
- Advice: 3 dates must be present for all rows and modification\_date must be updated for every row update

## 5. **YJFC** and **YJAC**: UNKNOWNFrame value for attribute system of COOSYS

- Cause: illegal value, use Unknown. No planetary reference for s\_region or MOC
- Advice extend RefFrame vocabulary to include planetary bodies Coordinate Ref Frames
- NB: work already started in Astropy. Semantics WG advises using VEP to populate RefFrame Vocab

## 6. General Issues

- some providers disappeared or are unreachable. The VESPA consortium uses gitlab issues to communicate with providers and improve the situation...

*Thanks to Stéphane Erard, Chloé Azria and Cyril Chauvin for their help on this analysis*

# Web API

- A POST web service with input and output in JSON formats
- Retrieve validation results from daily tests *programmatically*
- Documentation:  
=> <https://voparis-validation-reports.obsspm.fr/api/>
- Endpoint:  
=> [https://voparis-validation-reports.obsspm.fr/validation/api\\_v1](https://voparis-validation-reports.obsspm.fr/validation/api_v1)
- Example

# Web API - Examples

Retrieve validation results and error details for several ivoids

```
$ curl -d '{ "action": "query_services_errors", "mode": "multiple_ivoids",  
"protocol": "TAP", "ivoids" : ["ivo://org.gavo.dc/tap", "ivo://org.gavo.dc/  
gcpms/q/data"] }' https://voparis-validation-reports.obspm.fr/validation/  
api_v1
```

Retrieve validation results by ivoid substring

```
$ curl -d '{ "action": "query_services", "mode": "ivoid_substring",  
"protocol": "ConeSearch", "ivoid_substring": "gavo.dc" }' https://voparis-  
validation-reports.obspm.fr/validation/api_v1
```

Retrieve validation results and error details by ivoid substring, for all protocols, return all services including #aux ones

```
$ curl -d '{ "action": "query_services", "mode": "ivoid_substring",  
"protocol": "all", "ivoid_substring" : "gavo.dc",  
"include_aux_services": "yes" }' https://voparis-validation-  
reports.obspm.fr/validation/api_v1
```

Retrieve validation results by ivoid substring, for all protocols

```
$ curl -d '{ "action": "query_services", "mode": "ivoid_substring",  
"protocol": "all", "ivoid_substring" : "gavo.dc" }' https://voparis-  
validation-reports.obspm.fr/validation/api_v1
```

# Summary

- PADC daily crawls the Registry and validate all its SCS, SIA (v1 and v2), SSA, TAP, HiPS services. EPN-TAP validation now operational (40 services)
- Service Providers: please be proactive and check compliance:
  - **Reporting Web App** - browse your results  
<https://voparis-validation-reports.obspm.fr/>
  - **API** - get your results in JSON format  
<https://voparis-validation-reports.obspm.fr/api/>
- Improving the validators generally improves the statistics  
→ Comments and feedback always welcome !