

WDCRG – World Data Centre on reactive Gases

ET-WDC

Hampton, Oct 1-3, 2019

Kjetil Tørseth



Info

GAW World Data Centre for Reactive Gases (WDCRG)

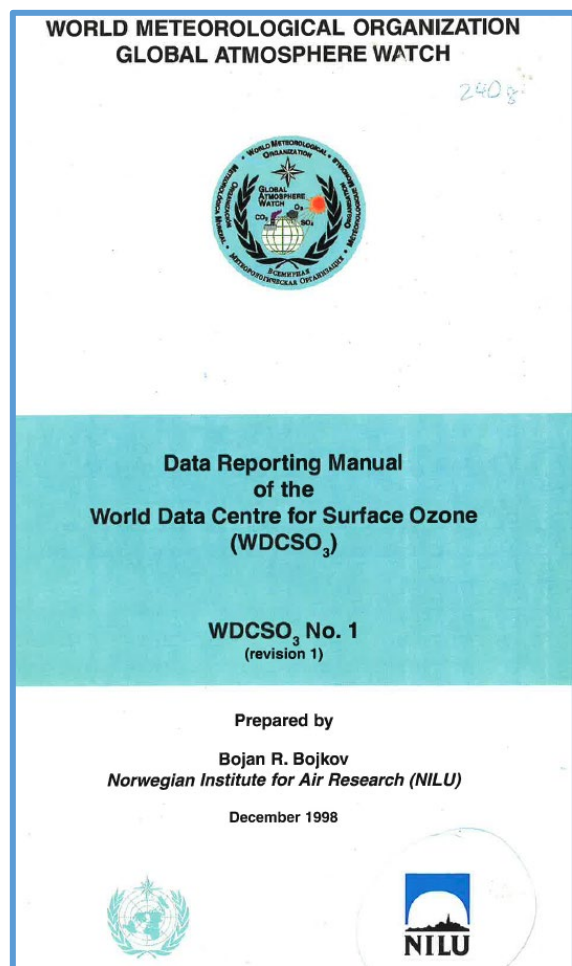


The World Data Centre for Reactive Gases (WDCRG) is the data repository and archive for reactive gases of the World [Atmosphere Watch \(GAW\) programme](#). The WDCRG was established January 1. 2016 and took over the responsibility of Japan Meteorological Agency (which continue to host the World Data Centre on Greenhouse Gases - [WDCGG](#)).

The first ordinary data reporting deadline was by end 2016 (data for 2015), and data for 2017 are due by 31. Dec 2018.

<https://www.gaw-wdcr.org>

Background



- WDCSO3: established at NILU late 1990ies
- Was not based on NILUs EBAS infrastructure used for EMEP ++
- After 5 years, only three sites had reported data, and two can be considered as «active». Both in Africa. Project leader left NILU.
- NILU suggested a transfer of surface ozone to WDCGG
- Some EMEP data were downloaded and have comprised a significant fraction of the RG-data of WDCGG (together with NOAA flask data)
- Major upgrades of data reporting within EMEP, GAW-WDCA, EUSAAR and ACTRIS from 2006->.
- 2009: JRC suggested transfer of WDCA to NILU
- NILU offered «WDCGG_node» to simplify reporting of data to both EMEP and GAW
- 2014: JMA suggested a transfer of RGs til NILU

Establishment of GAW-WDCRG

- Initial SAG-RG discussions:
 - WDCRG and WDCA, not WDCRGA
 - SO₂, Oxidized nitrogen species, Ozone (tropospheric) and VOCs to be hosted in WDCRG
 - CO to remain with WDCGG (some GAW sites report CO-data to EBAS without GAW affiliation)
- In-kind resources (limited) by NILU (no WMO Norway national support)
- Formally established January 1st 2016.
 - First data reporting deadline end 2016: data for 2015 + historic
 - Third call for data by end 2018: 2017 + historic
- Prerequisites:
 - Based on NILUs EBAS-infrastructure and associated procedures
 - Traceability related to data affiliations and policies

Template for Data Submission:

```
100 1001
Fiebig, Markus; Someone, Else
NO01L, Norwegian Institute for Air Resea
Fiebig, Markus
EMEP GAW-WDCRG ACTRIS
1 1
2012 01 01 2012 06 24
0.041667
days from file reference point
25
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
9999.999999 9999.9999 9999.9999 9999.999
9999.9999 9999.9999 9999.9999 9999.9999
end_time of measurement, days from the f
nitrogen_monoxide, nmol/mol, Statistics=
nitrogen_monoxide, nmol/mol, Statistics=
nitrogen_monoxide, nmol/mol, Statistics=
nitrogen_monoxide, nmol/mol, Statistics=
nitrogen_monoxide, nmol/mol, Statistics=expanded uncertainty 2sigma
nitrogen_monoxide, nmol/mol, Statistics=precision
nitrogen_monoxide, nmol/mol, Statistics=detection limit
numflag, no unit
```

Project association(s)

Description

Space separated list of project acronyms indicating the projects the data is associated with. For WDCA data, the GAW-WDCA project always has to be included. Additional project associations can be found at <http://ebas.nilu.no>. If further project associations are needed, please contact ebas@nilu.no.

Syntax:

```
<project acronym 1> <project acronym 2>
```

File reference date and revision date

Description:

The file reference date indicates the start point of the time axis in the file.

The time axis is stated in days and begins at 00 UTC on the file reference date.

Challenges

- Improve reporting (more sites/instruments and metadata)
- WDCGG metadata standards differs significantly from WDCRG
- Training and communication with non-European sites is a challenge
- Secure/preserve the full set of RG data available at WDCGG
- Large fraction of WDCGG RG data were already in EBAS
 - important not to replace valid data with outdated time series
 - WDCGG metadata are more sparse and also not compliant with EBAS conventions
 - Challenging to resolve formal issues on data affiliations etc.

How calls for data are made

1. Official letter by WMO/WDCRG/SAG-RG
2. Mail distribution to ~150 stations contacts
3. Reminders
4. Bilateral contact to acquire specific datasets

Important: the obligations on reporting are on the providers side!

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
世界气象组织

Secrétariat

7 bis, avenue de la Paix – Case postale 2300
CH 1211 Genève 2 – Suisse
Tél.: +41 (0) 22 730 81 11
Fax: +41 (0) 22 730 81 81
wmo@wmo.int – public.wmo.int

Our ref.: 5585-16/RES/AER/WDCRG

GENEVA, 28 November 2016

Subject: Request for reactive gases data submission to GAW

Dear Contributors of reactive gases data,

We thank you for your previous contributions of reactive gases measurement data and metadata to the World Data Centre for Greenhouse Gases (WDCGG). As informed in a letter dated December 2015, a new GAW World Data Centre for Reactive Gases (WDCRG) was recently established at NILU – Norwegian Institute for Air Research. Thus from 2016, WDCRG will serve as official repository for reactive gases data. NILU supports World Data Centre for

WDCGG (June 2015)

- Total 1076/1137 datasets, the latter number reflects parallel observations at some locations
- CO: 208/376,
- NOAA flask samples represents 589 datasets (CO=89, VOCs=500)
- Remainder (~172 datasets): mainly EMEP data which has been downloaded by JMA to populate WDCGG

WDCRG Sept 2019 (status 2018 in brackets)

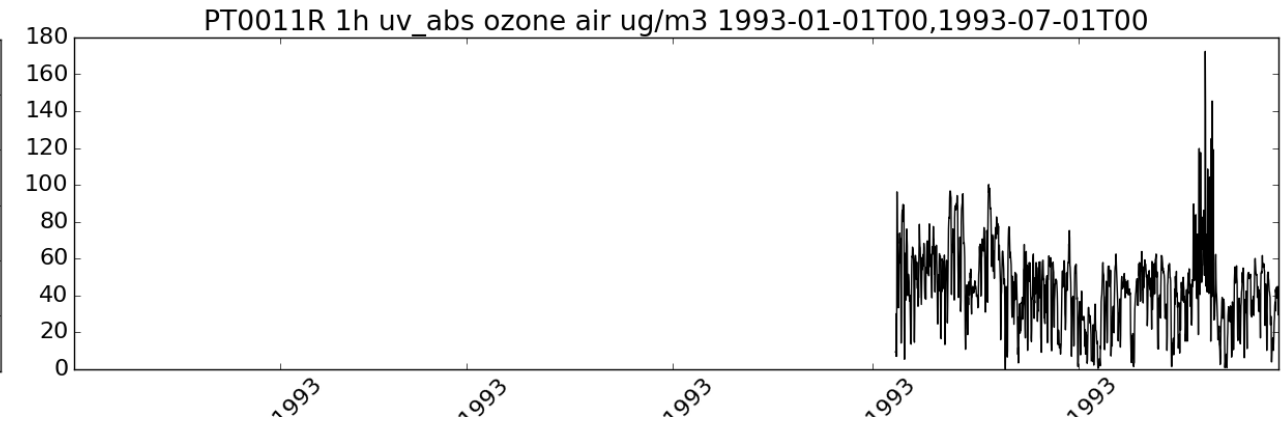
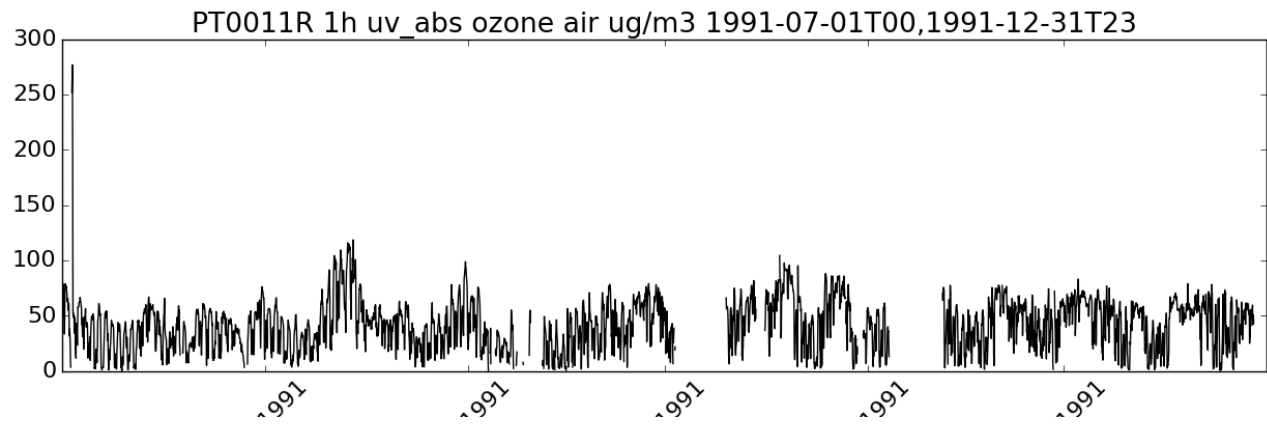
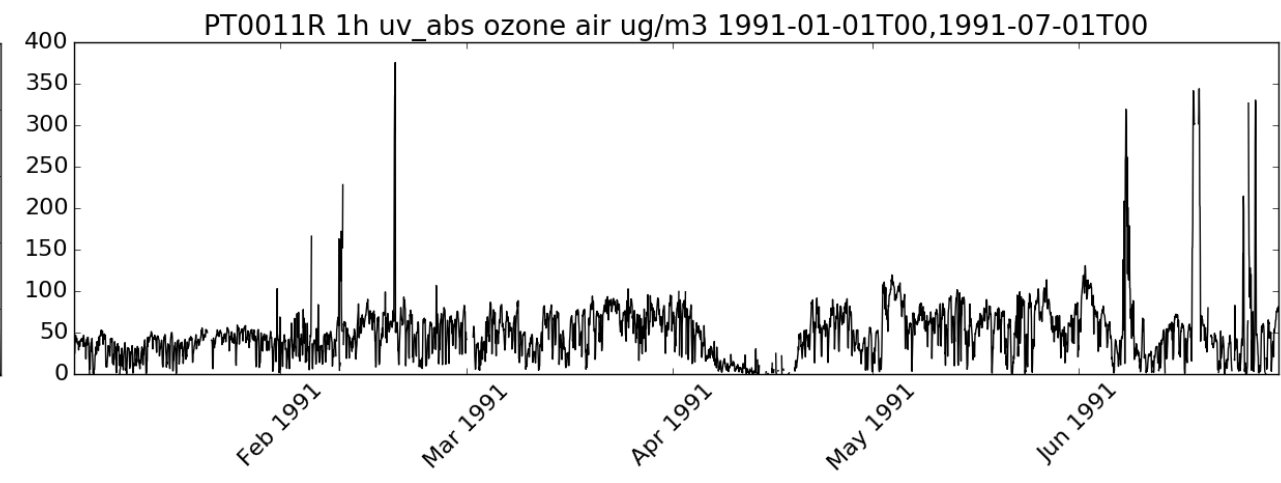
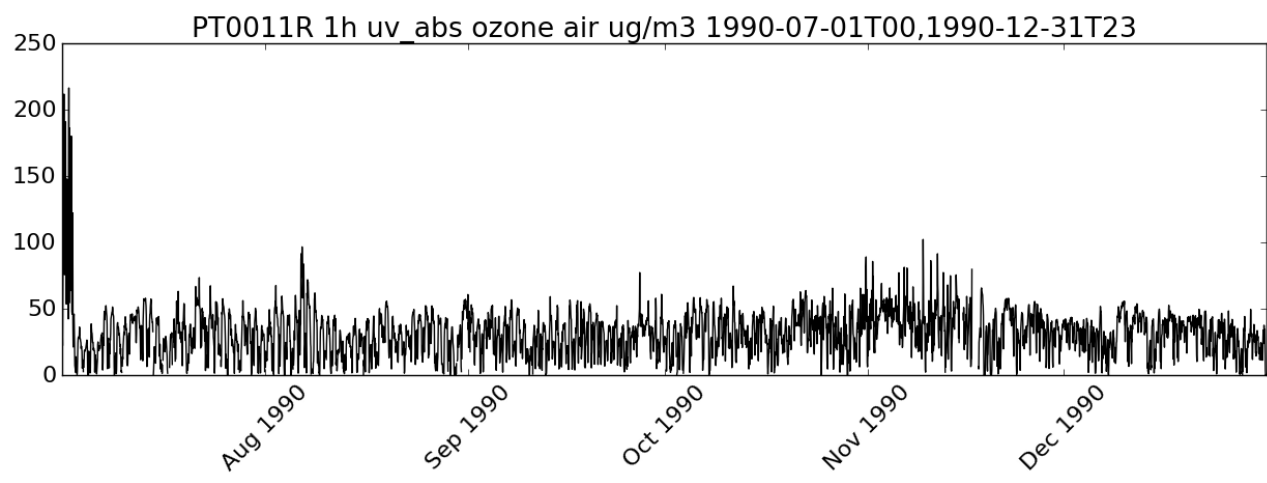
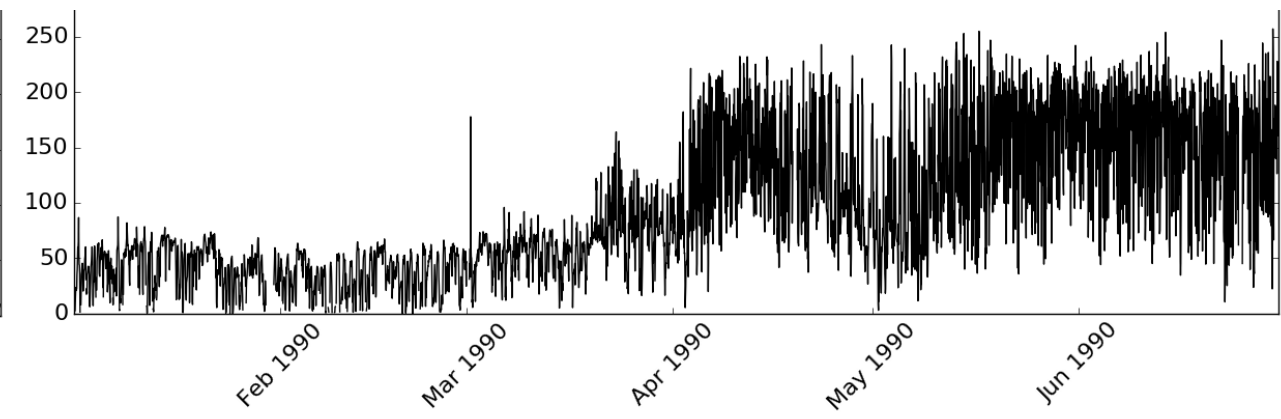
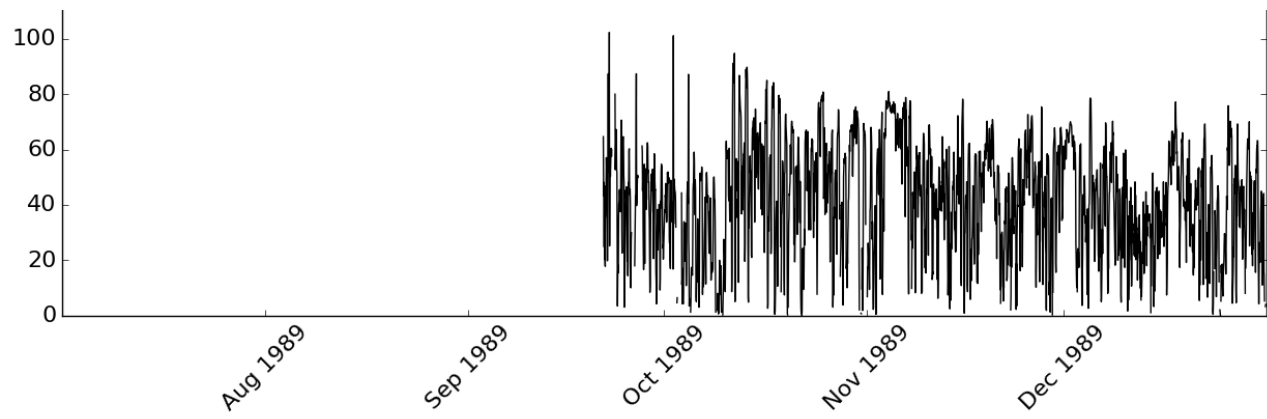
Total 2281 datasets (1923)

- 83 stations (63)
- 35 countries (28),
- 129 components (126)

Historic data (-> 2013):

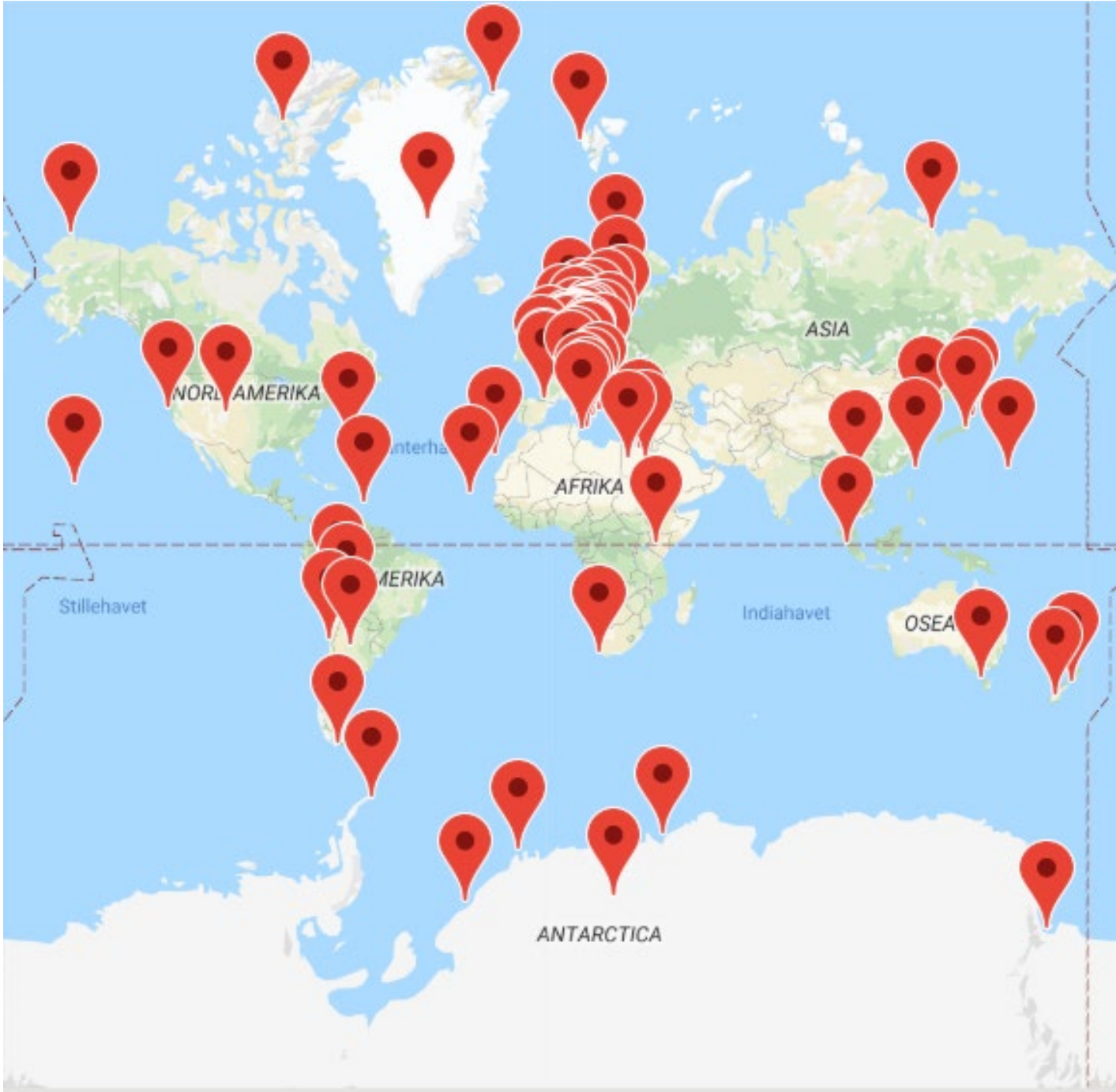
- 1216 datasets
- 49 sites
- 22 countries
- 111 components





Geographical coverage - WDCRG

all RGs



SO₂



NO_x



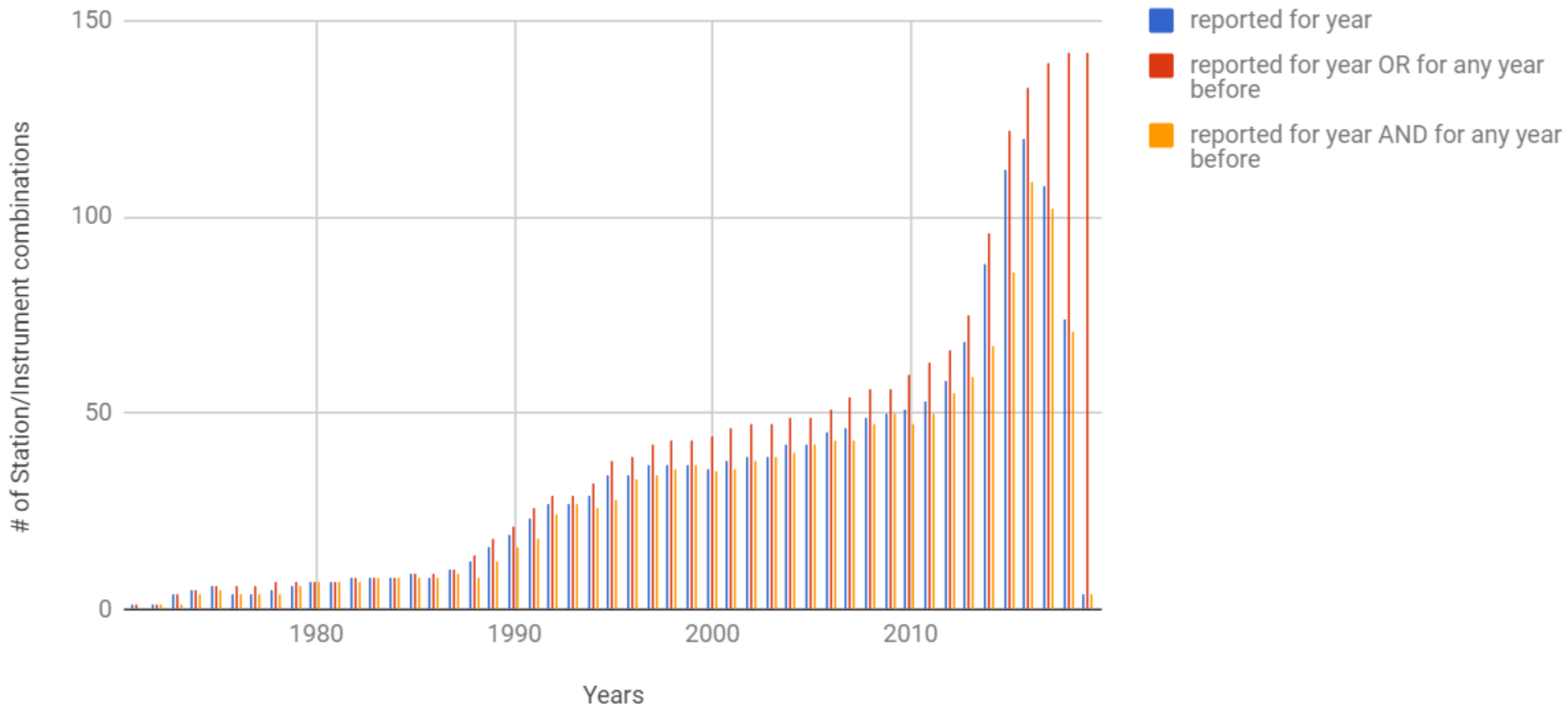
VOCs



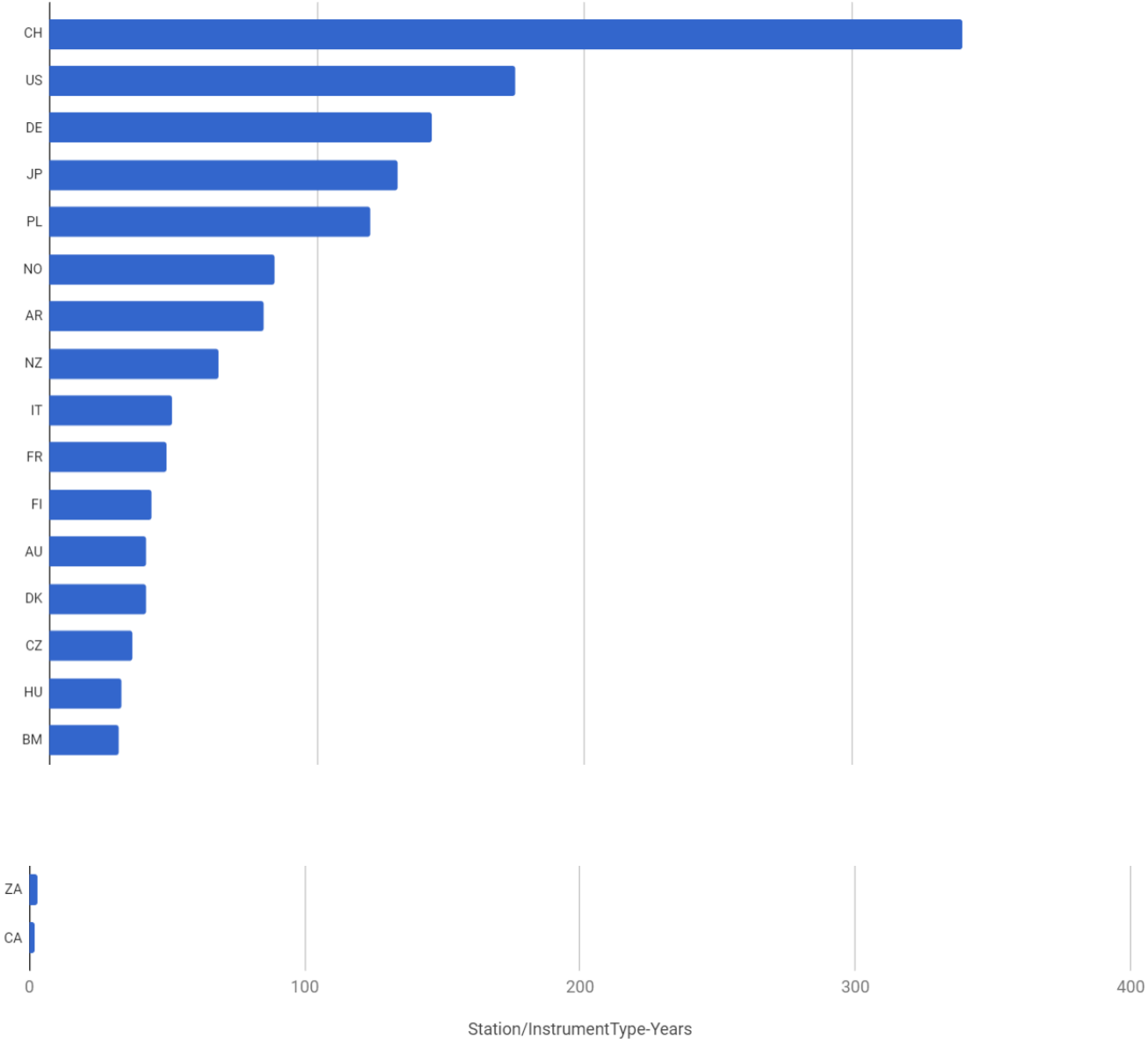
Ozone



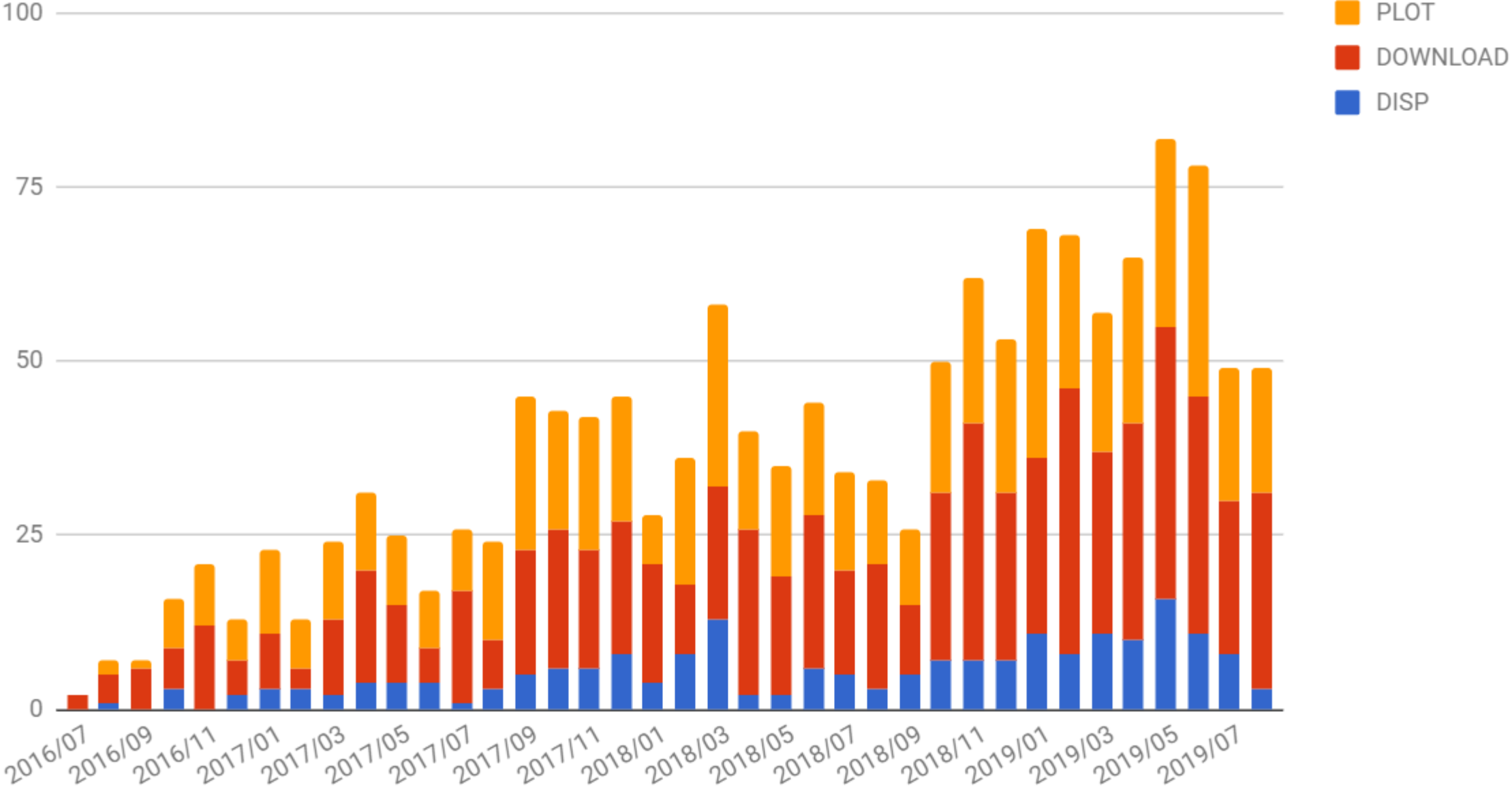
Station/Instruments reported by Year



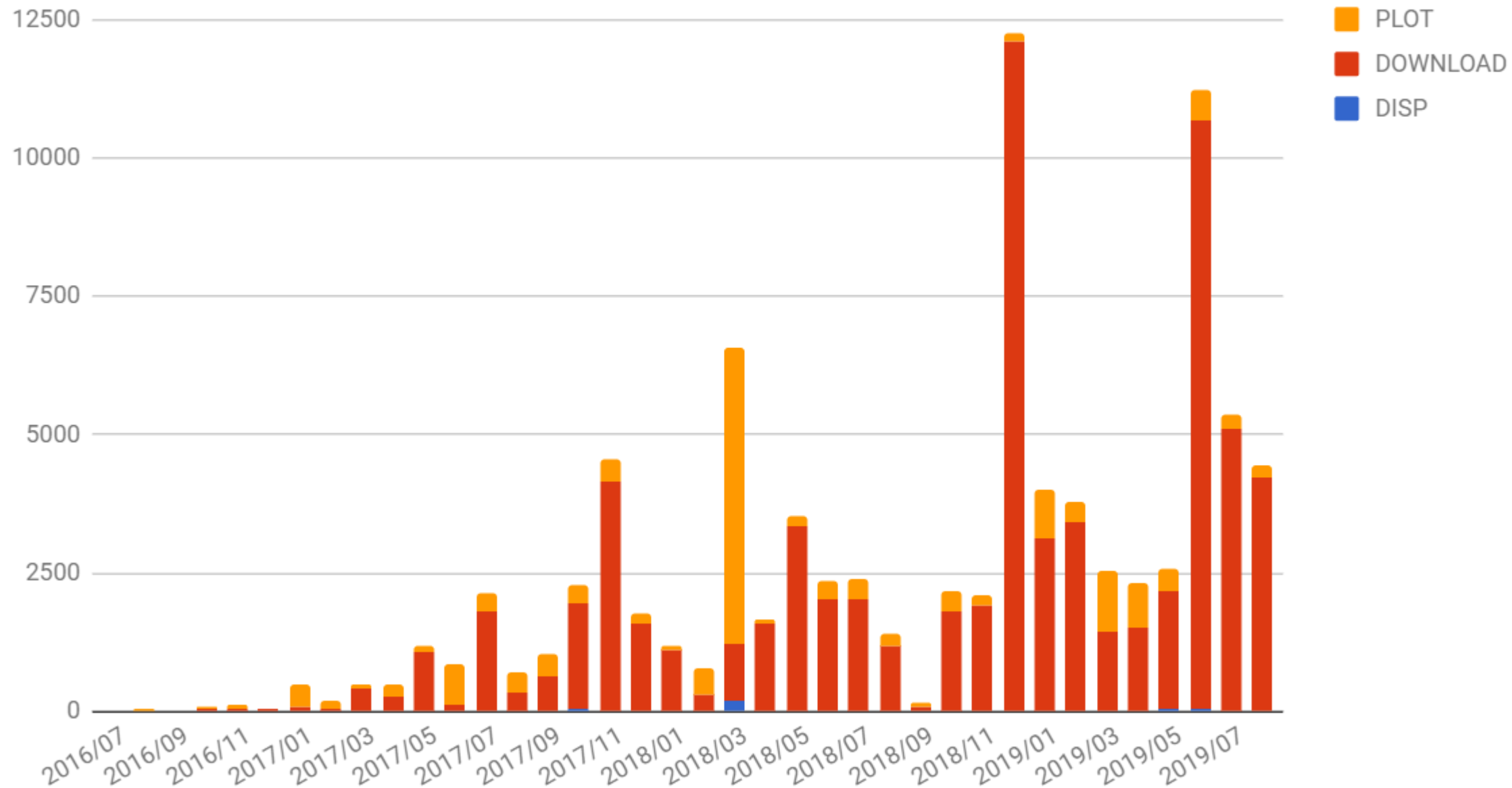
Station/InstrumentType-Years - WDCRG



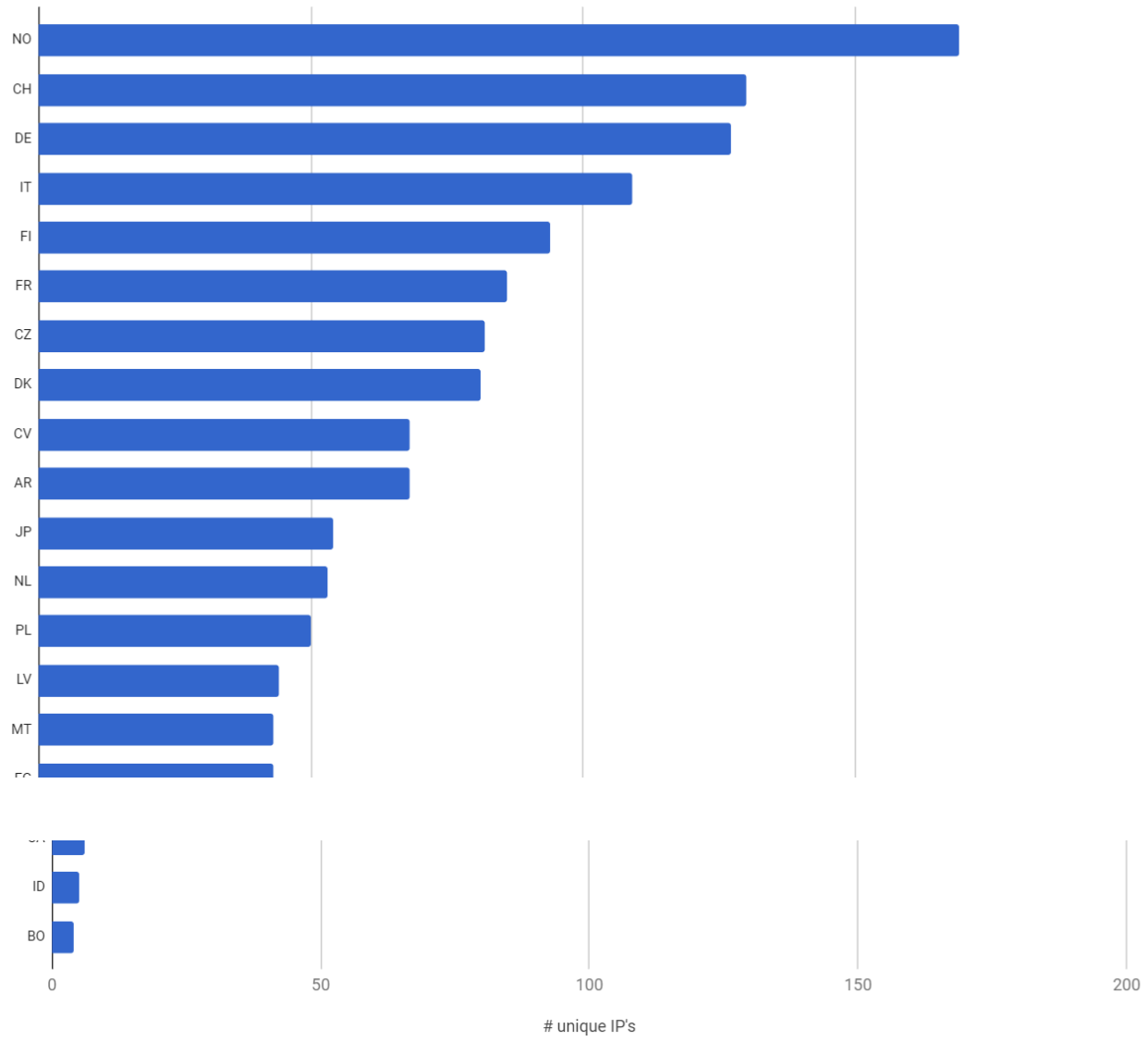
Data Access: #Unique client IPs (WDCRG)



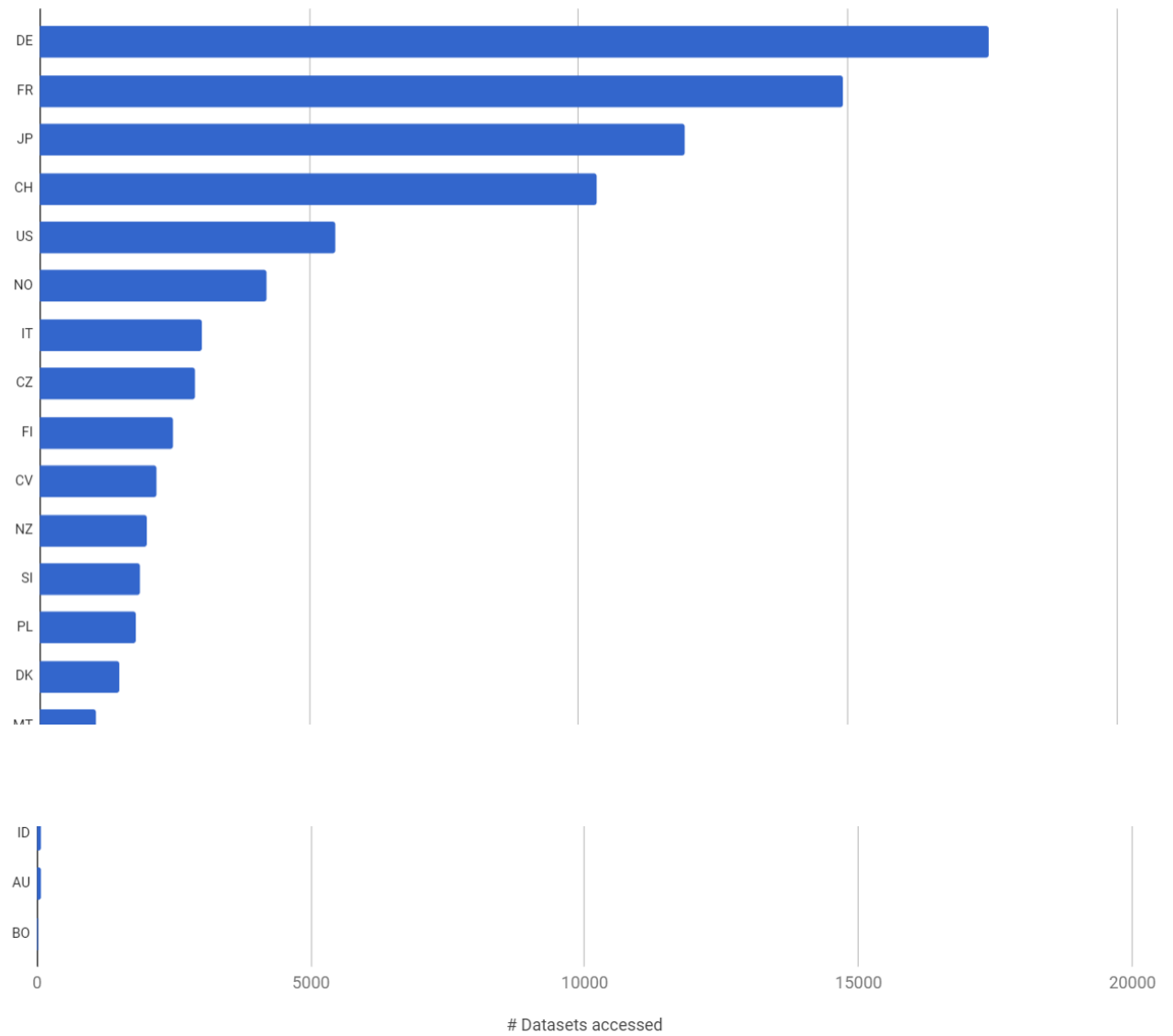
Data Access: #Datasets (WDCRG)



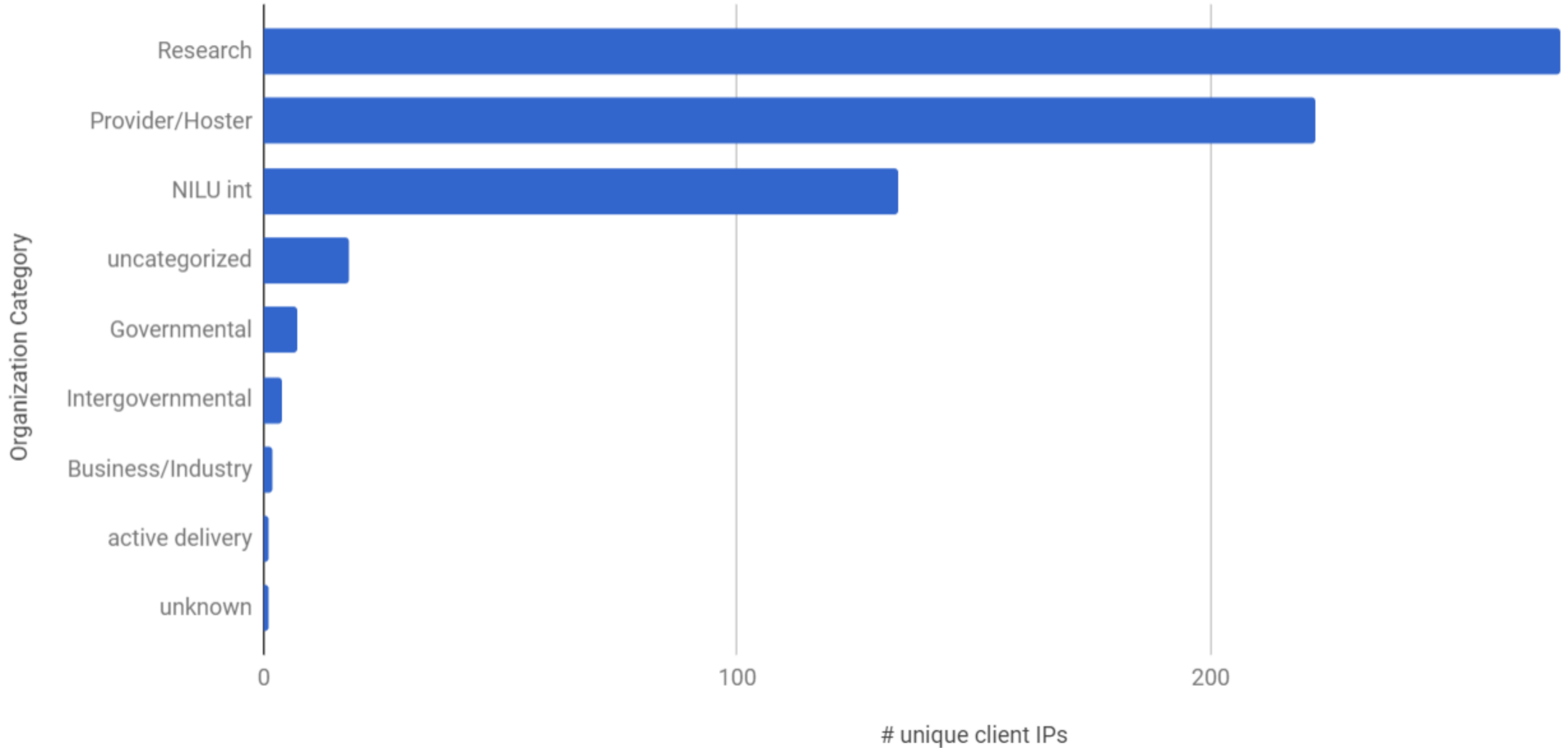
Data Access by Measurement Country (# unique IPs) - WDCRG



Data Access by Measurement Country (#Datasets) - WDCRG



Data Access by User Organisation Category (# unique IPs) - WDCRG



Conclusion

- WDC-RG has increased GAW data availability significantly
 - Ozone: global coverage
 - Other RGs: mainly EMEP data becoming affiliated with GAW (Europe)
- NOAA flask data remains unsolved
 - No response to calls for data (= no intention to submit?)
 - Official and updated data available at GMD/NOAA