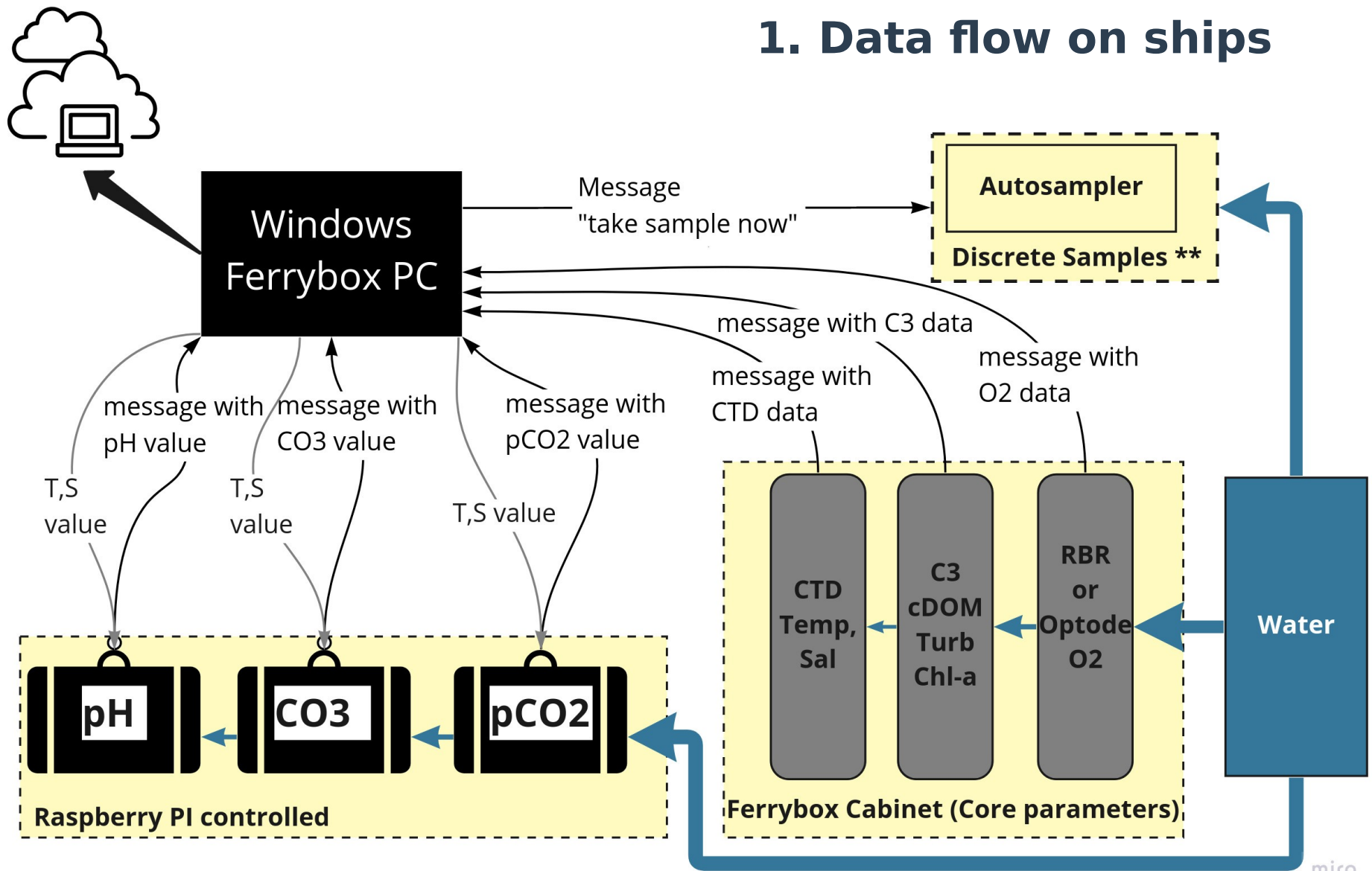
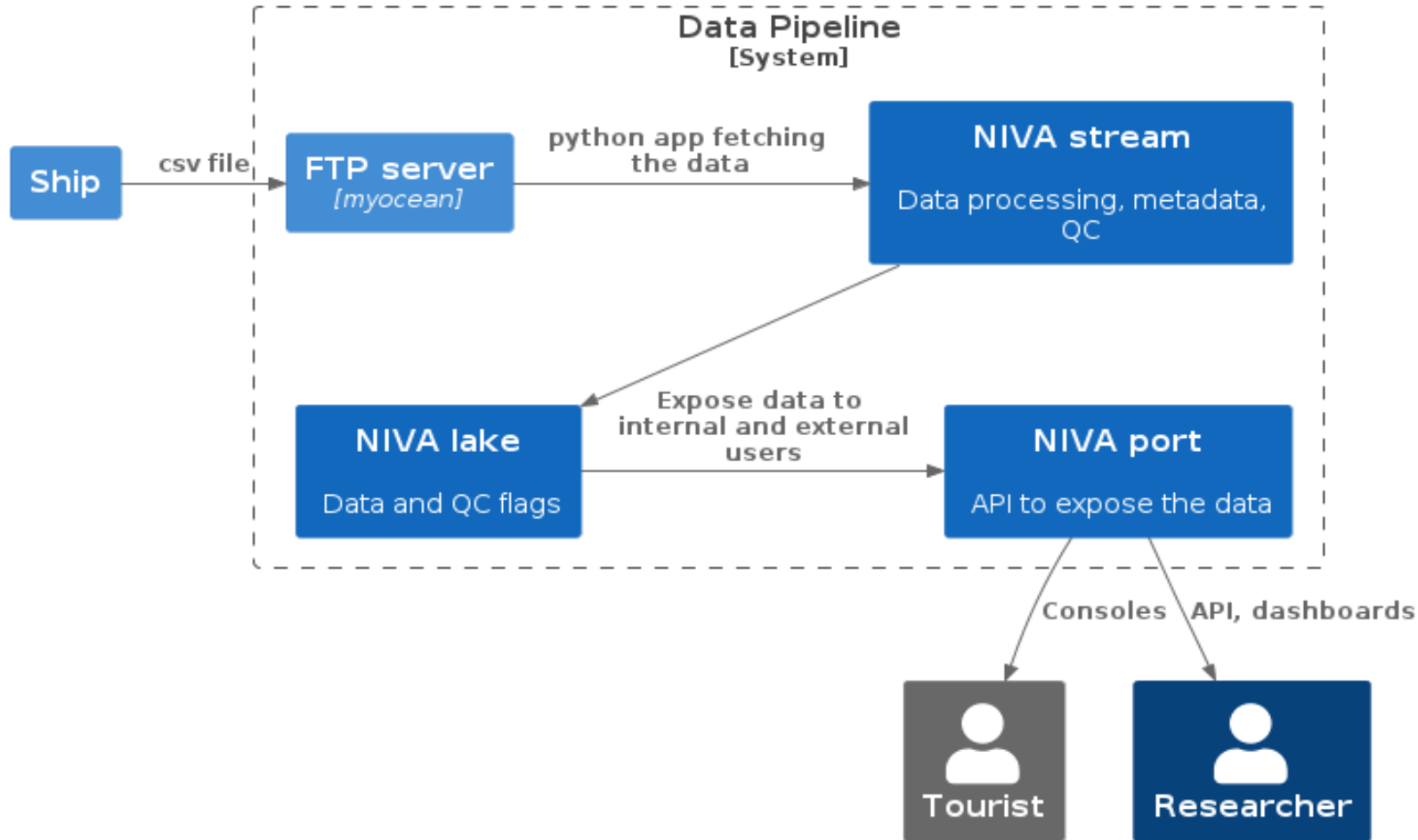


Ferrybox data management in NIVA

1. Data flow on ships



2. Generalized data flow



Legend

person
system
container
external person
external system
external container

3. Quality Control tests

QC Flags meaning:

1 is PASSED

-1 is FAILED

0 is NOT TESTED

1. Frozen test

The tests checks if 4 consecutive values before the tested value are equal. An array [5.,5., 5.,5., 5.,0.,1.] gives [-1,1, 1,0, 0,0,0]

2. Range test

Checks that data is within a specified range of values. Accepts time range and geographic range. The latter is based on minimum and maximum latitudes and longitudes values.

3.Spike test

Tests the difference between sequential measurements.

Array to test [V1,V2,V3]

Only V2 is being tested for a spike:

```
K_difference = abs(V2-(V3+V1)/2) - abs((V3-V1)/2)
```

```
if K_difference > Threshold :
```

```
    V2 flag = -1
```

3.Boat velocity

Velocity based on lat and lon, bounded variance test

Final Flag Calculation :

Overall (Final) Flag can be calculated from different combinations of QC flags:

- 1) flags related to the given variable + gps flags + pump status flags
- 2) gps flags + pump status flags
- 3) only gps flags (for parameters not affected by pump status)

Additional info:

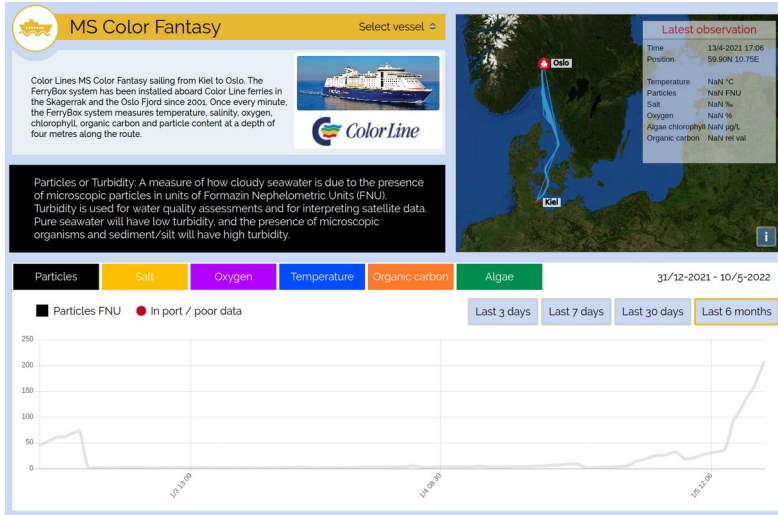
- List of test to apply for each signal can be different

4. Data sharing/ visualization

API for querying data, and python wrapper for it

*External API access available on request

Public Consoles



Dashboards with local access(Grafana)

