

birdhouse

Web Processing Services (WPS) for climate data

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LABORATOIRE DES SCIENCES DU CLIMAT & DE L'ENVIRONNEMENT

Modelling Animation 15. Mars 2016



**Data volume grows quick.
Limited storage/compute capacities at client side**



**“download and
process at home”**

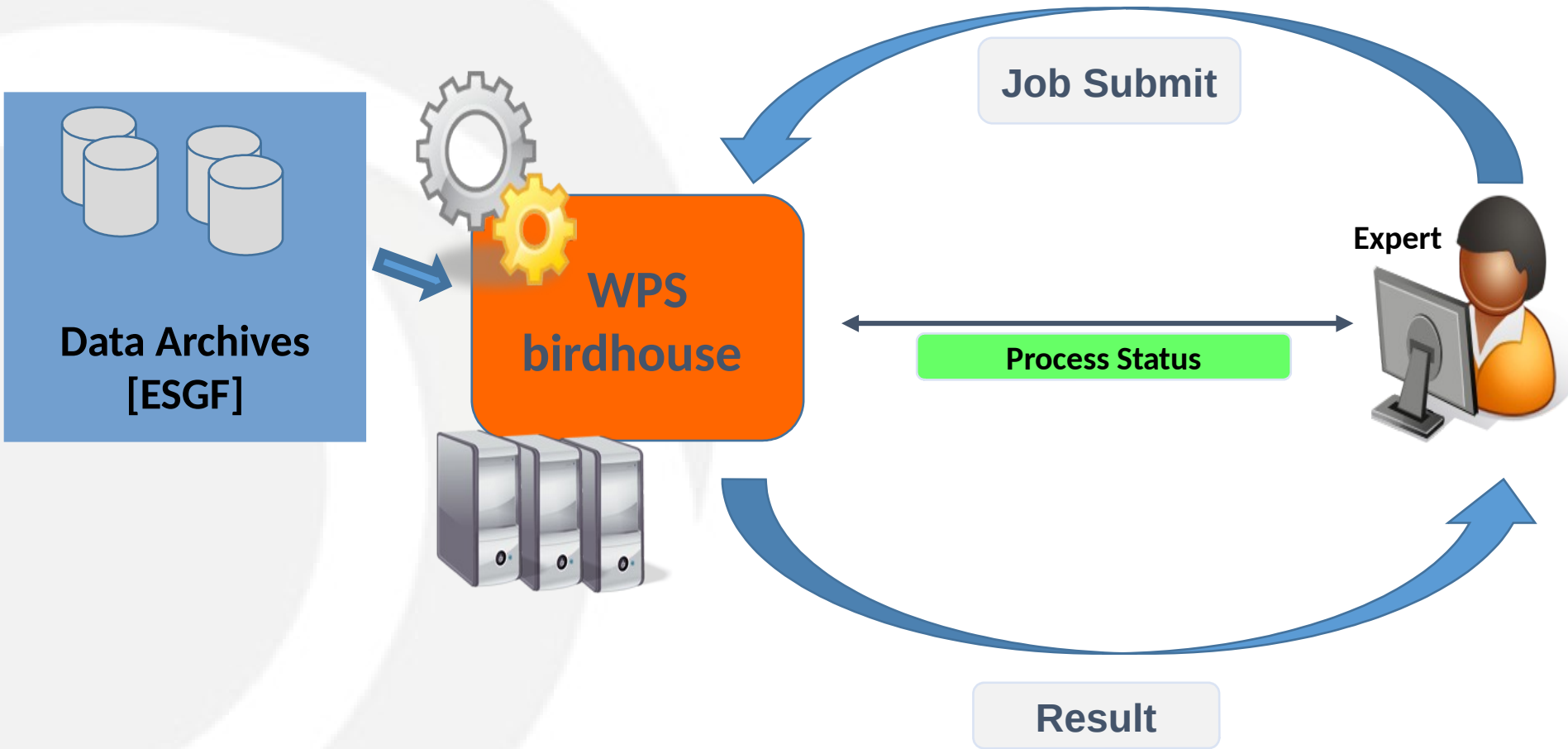


**process close to data
at the data centers**

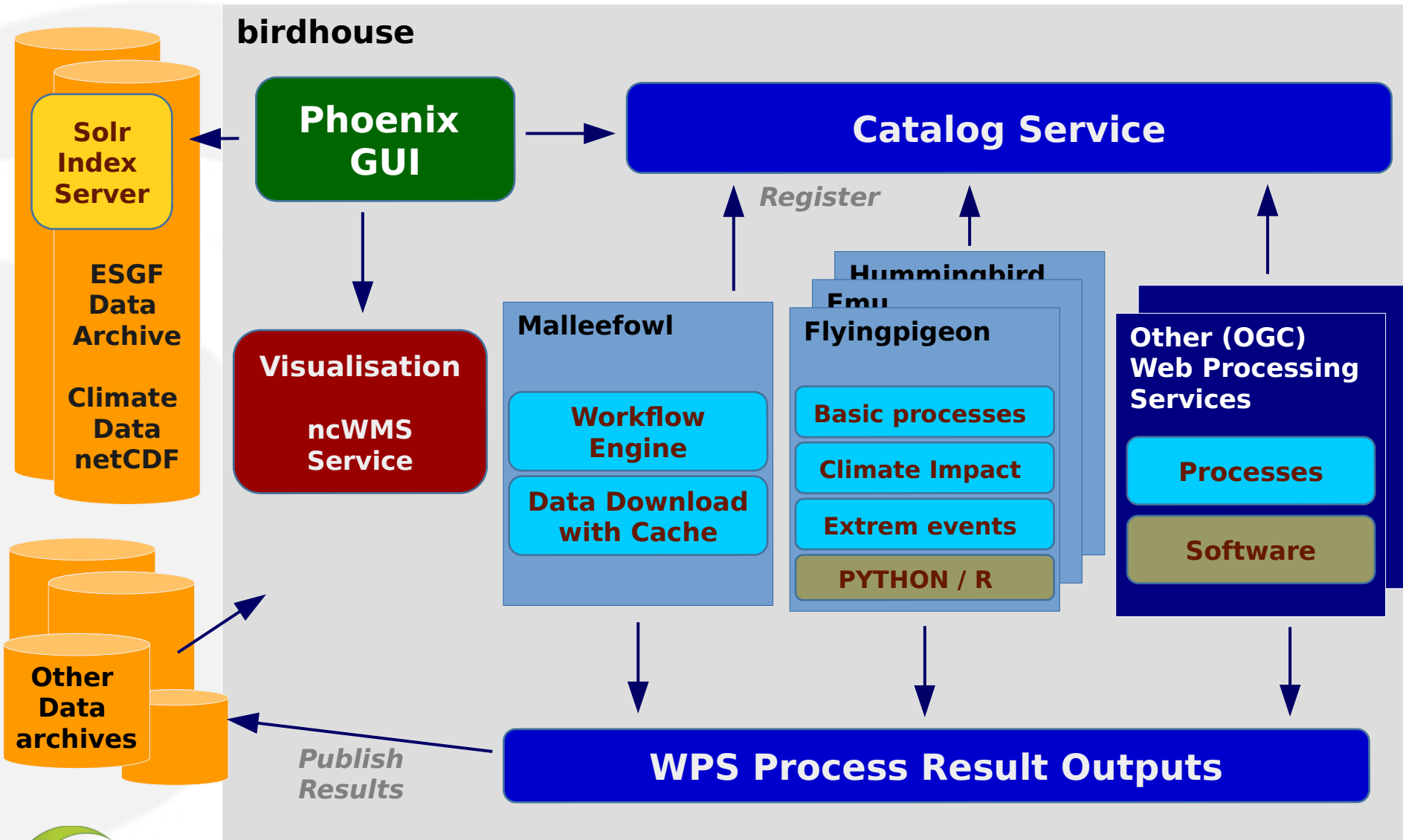


**Web Processing Service
to trigger compute processes at data center**





Organisation



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Institut
Pierre
Simon
Laplace

PYTHON – Call

```
from owslib.wps import WebProcessingService, monitorExecution
```

```
wps = WebProcessingService(url="https://mouflon.dkrz.de/wps", \
                           verbose=False, skip_caps=False)
```

```
execute = wps.execute(
    identifier="niceprocess",
    inputs=[
        ("parameter_1", "argument"),
        ("parameter_2", "42"),
        # ("parameter_3", "0.987"), # use the default value
        ("file_identifier", "https://thredds/fileServer1/test/file1.nc"),
        ("file_identifier", "https://thredds/fileServer1/test/file2.nc"),
        ("file_identifier", "https://thredds/fileServer2/test/file3.nc")],
    output=[("output", True)])
```

```
# time for a coffee
```

```
for o in execute.processOutputs:
    print o.reference
```

```
https://mouflon.dkrz.de:8090/wpsoutputs/flyingpigeon/output\_graphic-697dee76-d722-93ae-9789bf75cf44.png
```

```
https://mouflon.dkrz.de:8090/wpsoutputs/flyingpigeon/output\_netCDF-697dee76-d722-93ae-9789bf75cf44.nc
```

```
https://mouflon.dkrz.de:8090/wpsoutputs/flyingpigeon/output\_text-697dee76-d722-93ae-9789bf75cf44.txt
```



Terminal – Call

```
[nhempel@lsce3199 ~]$ export WPS_SERVICE=http://birdhouse-lsce.extra cea.fr:8093/wps
```

```
[nhempel@lsce3199 ~]$ birdy -h
```

usage: birdy [<options>] <command> [<args>]

Flyingpigeon: Processes for climate data, indices and extrem events

optional arguments:

-h, --help show this help message and exit
--debug enable debug mode

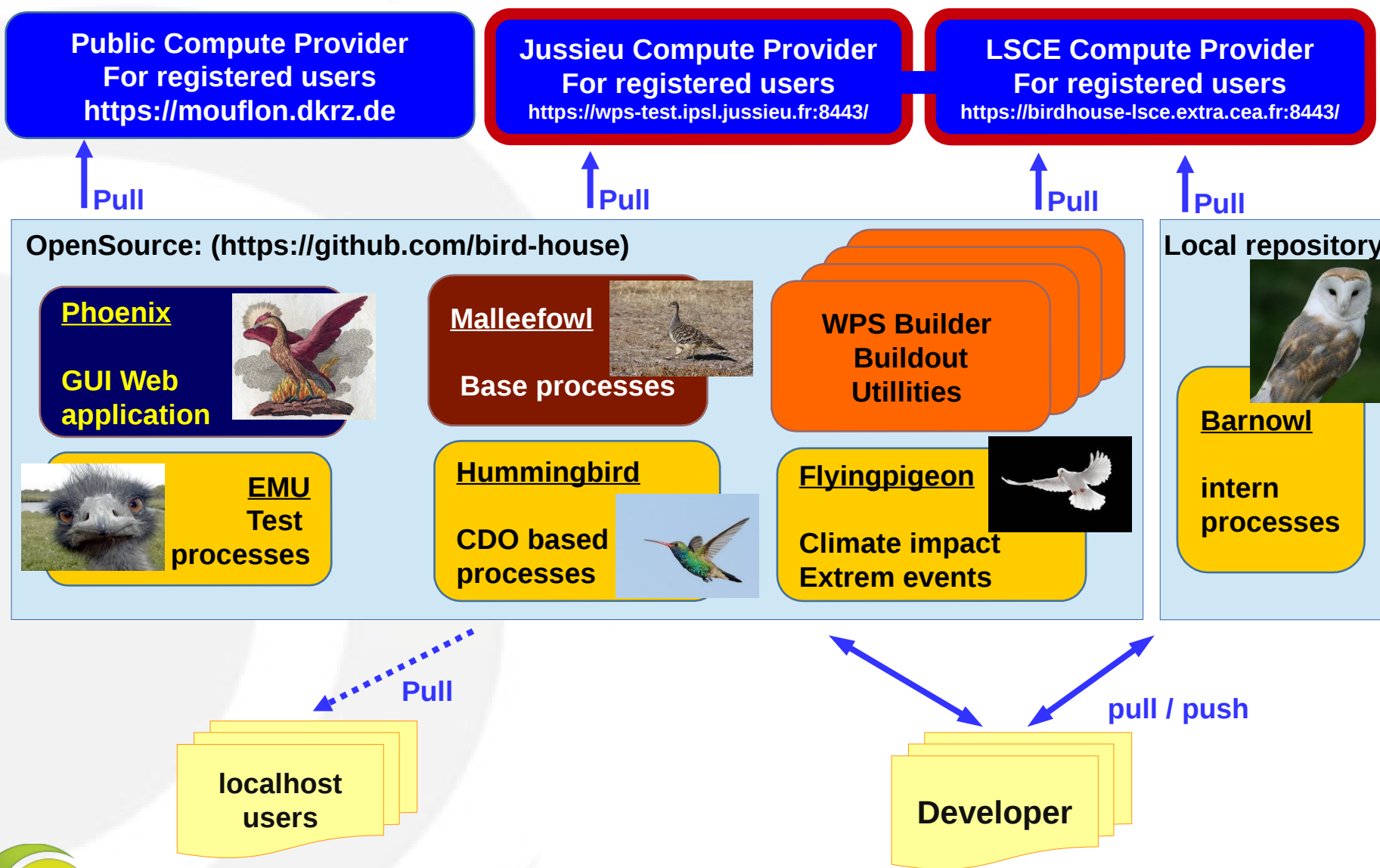
command:

List of available commands (wps processes)

{visualisation,sdm,segetalflora,indices_single,subset_countries,eobs_to_cordex,ensembleRobustness,analog,fetch}
Run "birdy <command> -h" to get additional help.

visualisation	Visualisation of netcdf files:	Just testing a nice script to visualise some variables
sdm	Species distribution model:	Species distribution model
segetalflora	Segetal Flora:	Species biodiversity of segetal flora. Input files: variable:tas , domain: EUR-11 or EUR-44
indices_single	Calculation of climate indice (single variable):	This process calculates climate indices based on one single variable.
subset_countries	Subset netCDF files:	This process returns only the given polygon from input netCDF files.
eobs_to_cordex	EOBS to CORDEX:	downloads EOBS data in adapted CORDE format
ensembleRobustness	Calculation of the robustness of an ensemble:	Calculates the robustness as the ratio of noise to signal in an ensemble of timeseries
analog	Days with analog pressure pattern:	Search for day with analog pressure pattern
fetch	Download Resources:	This process downloads resources (limited to 50GB) to the local file system and returns a textfile with appropriate path





birdhouse

- Based on Open Source
- Open Geospatial Consortium (OGC) Standards
- Conda buildouts
- Easy to install (make install)
- **<https://github.com/bird-house>**
- **<http://birdhouse.readthedocs.org/en/latest/>**
- **<https://lists.dkrz.de/mailman/listinfo/wps>**
- **<https://lists.dkrz.de/mailman/listinfo/wps-dev>**
- **<https://birdhouse-lsce.extra.cea.fr:8443/>**

