

SOME GENERAL COMMENTS

- if you run the following command:

```
> cp .login .cshrc
```

```
> source .cshrc
```

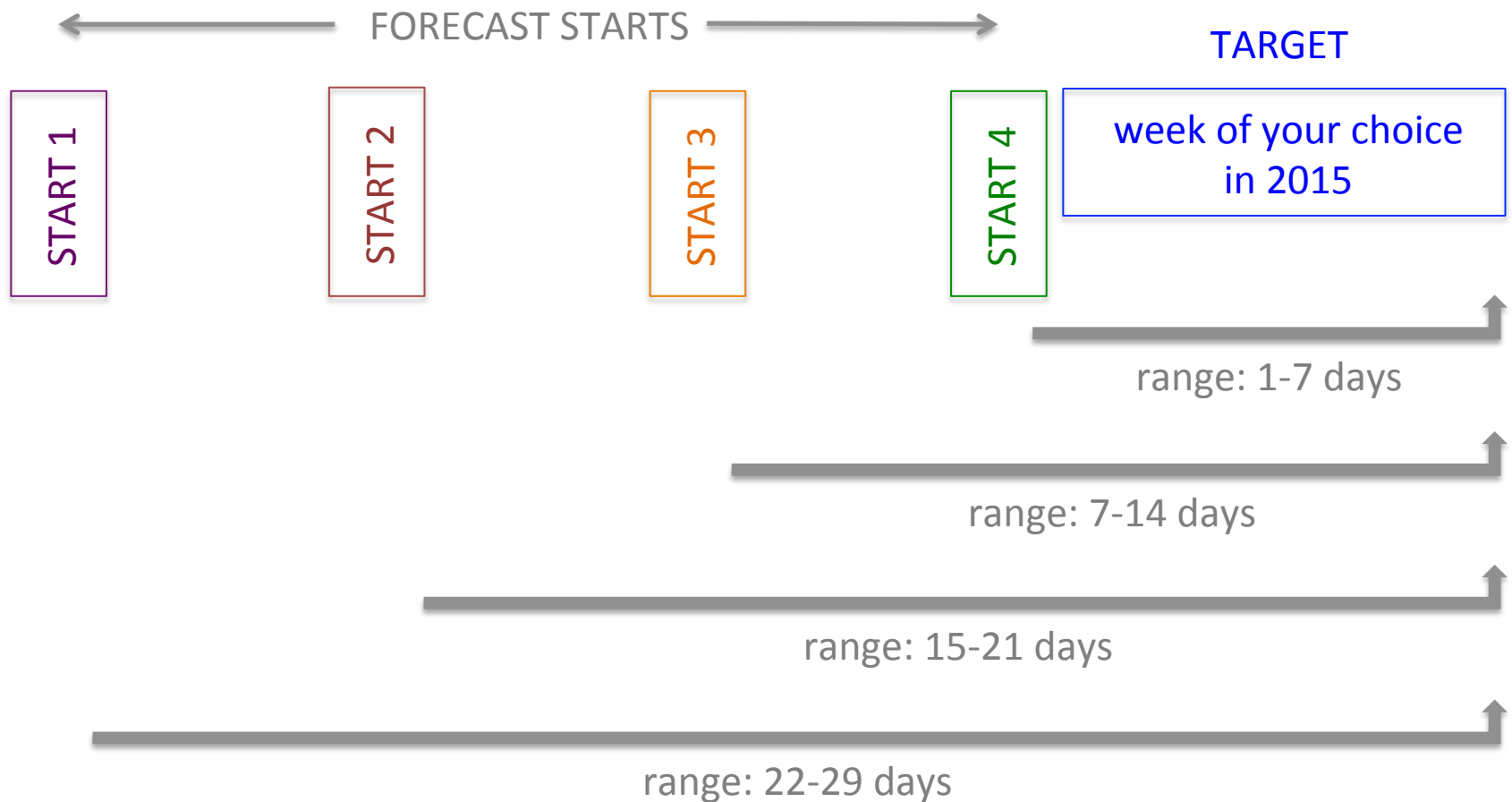
you will not need to source the login at every session.

LAB EXERCISE 3

- Define **your own case study**: for example, select a week in 2015 where there has been an interesting event over your country or choose a random week in 2015. The variable does not have to be 2m temperature necessarily.
- Compute **anomalies at various forecast ranges** (e.g. day 1-7, 8-14, 15-21, 22-29..) from ECMWF, NCEP/ BoM/CMA

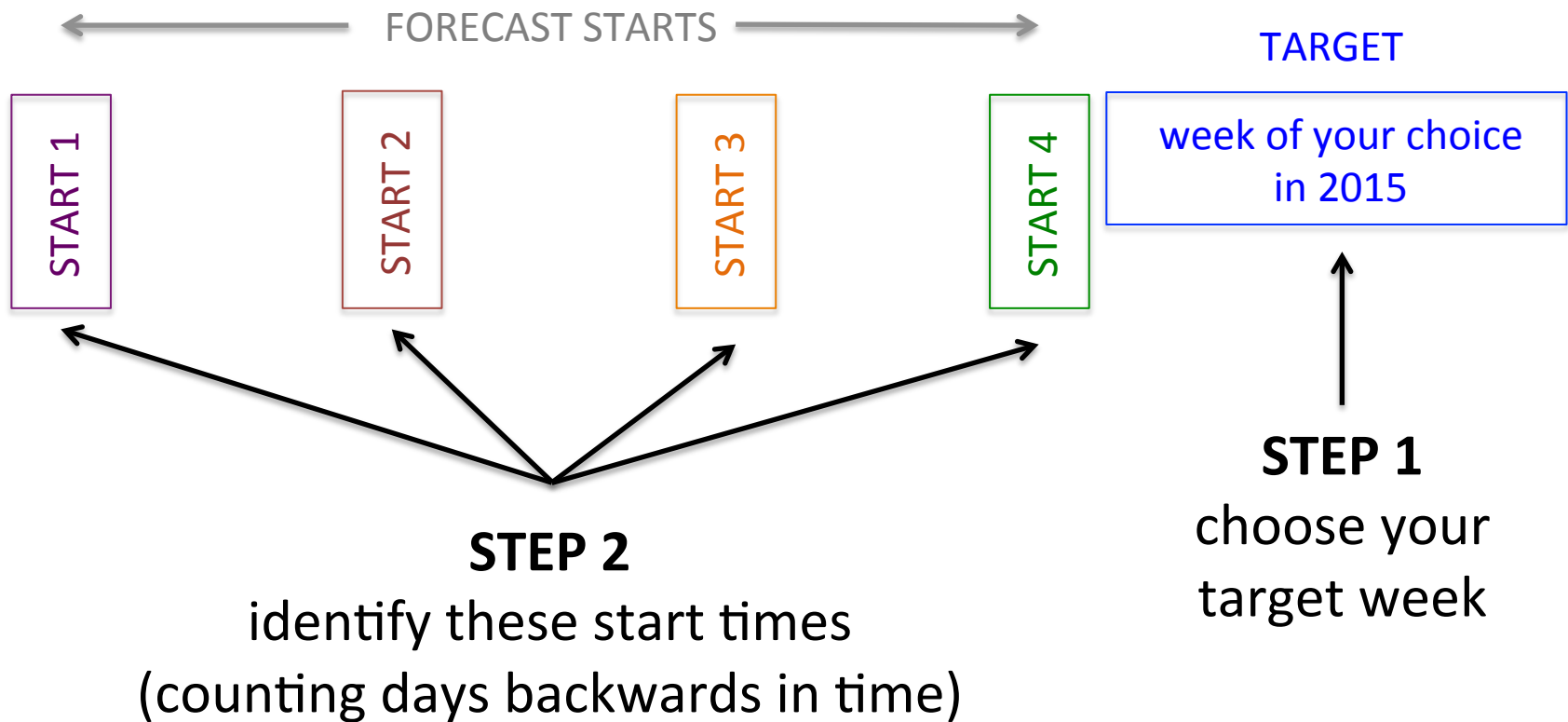
WHAT ARE WE TRYING TO DO?

a verification of the forecasted anomalies for our study case and for **different forecast ranges**: 1-7 days, 7-14, 15-21, 22-29, etc.



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IMPORTANT PRECAUTIONS

- Keep in mind that **some models are not started every day**, so you might need to change slightly your target week and/or redefine your forecast ranges
- Make sure that you know if you are using an **instant field** (e.g., t2m, u) **or** an **accumulated field** (e.g., tp, ttr), since the you will have to follow **different procedures** to calculate the daily anomalies
- If your variable of choice was not t2m, you will have to introduce **changes to the matlab** code to get correct results

WEBAPI PYTHON SCRIPTS

3 ways to generate WEBAPI scripts:

1) Go to S2S data portal <http://apps.ecmwf.int/datasets/data/s2s>

Select the data you want and click “view the mars request” at the bottom of the page. Copy the script into a file in your directory and execute

IMPORTANT: 2 bugs have been introduced in last Wednesday system session and will be there until next Thursday:

For ERA INTERIM replace “interim_daily” with “interim”

For S2S add the line: “dataset” : “s2s”,

2) Copy examples from ECMWF wiki pages which are available for each model, real-time or re-forecasts:

Go to <https://software.ecmwf.int/wiki/display/S2S/Models>

3) Write your own PYTHON commands or modify an existing one

What do we expect from you? By the end of the training course we expect you to use option 3.

WEBAPI SCRIPTS

Real-time forecast

```
#!/usr/bin/env python
from ecmwfapi import ECMWFDataServer
server = ECMWFDataServer()
server.retrieve({
    "class": "s2",
    "dataset": "s2s",
    "date": "2015-02-08",
    "expver": "prod",
    "levtype": "sfc",
    "origin": "ammc",
    "param": "tp",
    "step": "24/to/1488/by/24",
    "stream": "enfo",
    "target": "CHANGEME",
    "time": "00",
    "type": "cf",
})
```

Re-forecasts

```
#!/usr/bin/env python
from ecmwfapi import ECMWFDataServer
server = ECMWFDataServer()
server.retrieve({
    "class": "s2",
    "dataset": "s2s",
    "hdate": "1981-01-01",
    "date": "2014-01-01",
    "expver": "prod",
    "levtype": "sfc",
    "origin": "ammc",
    "param": "tp",
    "step": "24/to/1488/by/24",
    "stream": "enfh",
    "target": "CHANGEME",
    "time": "00",
    "type": "cf",
})
```

Difference real-time and reforecasts

- Stream is set to enfo for real-time and enfh for reforecasts
- 2 dates in re-forecast scripts:
 - Date
 - Hdate

Date is the modelVersionDate which is fixed for BoM to 20140101 but is model dependant

To get the model Version date of a new model:

Goto ECMWF data portal or

<https://software.ecmwf.int/wiki/display/S2S/Models>

Levels

- Surface parameters:

"levtype": "sfc",

- Pressure level parameters

"levtype": "p1",

"level": "850/500/200",

MODEL

- "origin": "ammc",

ammc is the WMO code for BoM

For ECMWF: ecmf

NCEP: kwbc

JMA: rjtd

The list of codes is available here:

<https://software.ecmwf.int/wiki/display/S2S/Models>

Parameter

- `"param": "tp",`

Parameter can be entered either as an abbreviation (e.g. tp for total precipitation) or as a number 228228 for precip, 167 for 2mtm

To get the list of parameters and their abbreviations goto:

<https://software.ecmwf.int/wiki/display/S2S/Parameters>

Steps

- "step": "24/to/1488/by/24",

For instantaneous or accumulated fields:

"step": "inistep/to/laststep/by/frequency",

Or list explicitly all the steps

"step": "24/48/72",

For daily means, you need to list explicitly all the steps:

"step": "0-24/24-48/48-72",

time

- "time": "00",

This is the time of the start date of the forecast. It should be set to 00 for all models EXCEPT JMA which starts at 12Z:

For JMA:

"time": "12",

Type

- `"type": "cf",`

The value should be cf (control forecast) or pf (perturbed forecast)

For perturbed forecasts:

`"type": "pf",`

+ add the line:

`"number": "1/to/4" or "number": "1/2/3/4"`

Retrieving the data on a small area

By default the data is retrieved GLOBALLY

To retrieve only a specific area, add the command line:

“area” : “N/W/S/E”

e.g. “area” : “40/-20/0/30”

Will give you an area in west Africa

Different GRID

- By default the data is retrieved on the S2S 1.5 degree grid, except for BoM which is in the native coarser grid.

To retrieve on a different grid, add the command line:

“grid” : “1.0/1.0”,