Organization of the users hands-on session

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Introduction slides (in Google Drive)

20-25 minutes, 3-4 minutes for each slide

Overview of pysteps modules → The workflow for generating a nowcast → Deterministic nowcasts → Ensemble nowcasts → Visualization tools → Verification tools → More advanced functionality

- The workflow for generating a nowcast
  - read the input time series
  - use optical flow to estimate the advection field
  - apply data transformations
  - call the nowcast function
  - write the output
- Deterministic / Ensemble nowcasts
  - what method to use for what purpose?
  - brief introduction to the differences of the methods with illustrations
- Visualization tools
  - introduction to different visualization methods
- Verification tools
  - what metric to use for what purpose?
- More advanced functionality
  - cell tracking
  - blending with NWP

Exercises (assignments in GitHub + notebooks in Google Colab)

Block 1: Setup

- Setup Colab environment — 15 minutes

Block 2: Reading, transforming and visualizing input data

- Read and visualize input data — 10 minutes
- Data transformations — 5 minutes

Optional exercises:
- Use Cookiecutter to implement a data importer plugin

Block 3: Optical flow and extrapolation

- Optical flow — 10 minutes
- Extrapolation — 10 minutes

Optional exercises:
- Advection-based interpolation

Block 4: Nowcasting methods

Two parallel groups

a)
- Compute and visualize deterministic nowcasts — 15 minutes
- Calculate and plot verification metrics — 10 minutes
- Export the output — 10 minutes

b)
- Compute and visualize ensemble nowcasts — 15 minutes
- Calculate and plot verification metrics — 10 minutes
- Export the output — 10 minutes

Block 5: Other pysteps functionality

- Blending with NWP
- Cell tracking

15 minutes