CGC: an open-source Python module for geospatial data clustering

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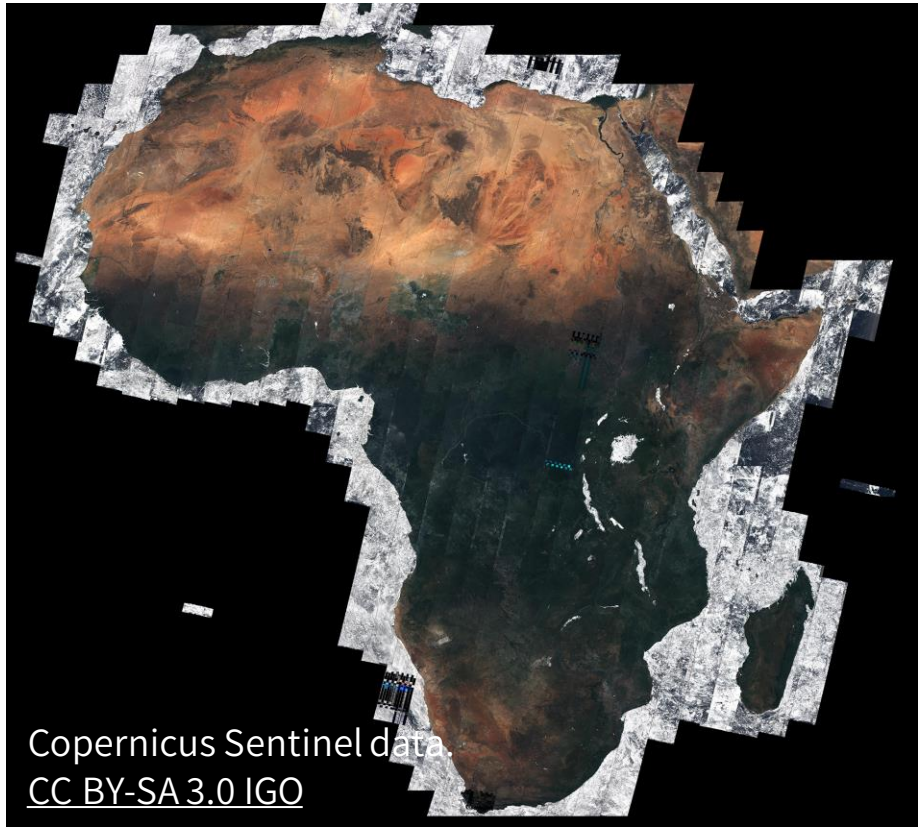
Motivation and challenges

Space \ Time	T1	T2	T3	…	TN
S1	1	15	3	…	1
S2	2	65	4	…	21
S3	5	70	3	…	34
S4	7	115	4	…	2
…	…	…	…	…	…
SM	3	67	1	…	40



Clustering spatio-temporal data

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Clustering Geo-data Cubes (CGC)

- Iterative **co-clustering** (2D) and **tri-clustering** (3D) algorithms.
- Optional cluster refinement step.
- Implementations for **single machine** and **computer clusters** (Dask).
- Generic partitional clustering algorithms, targeting geospatial data.

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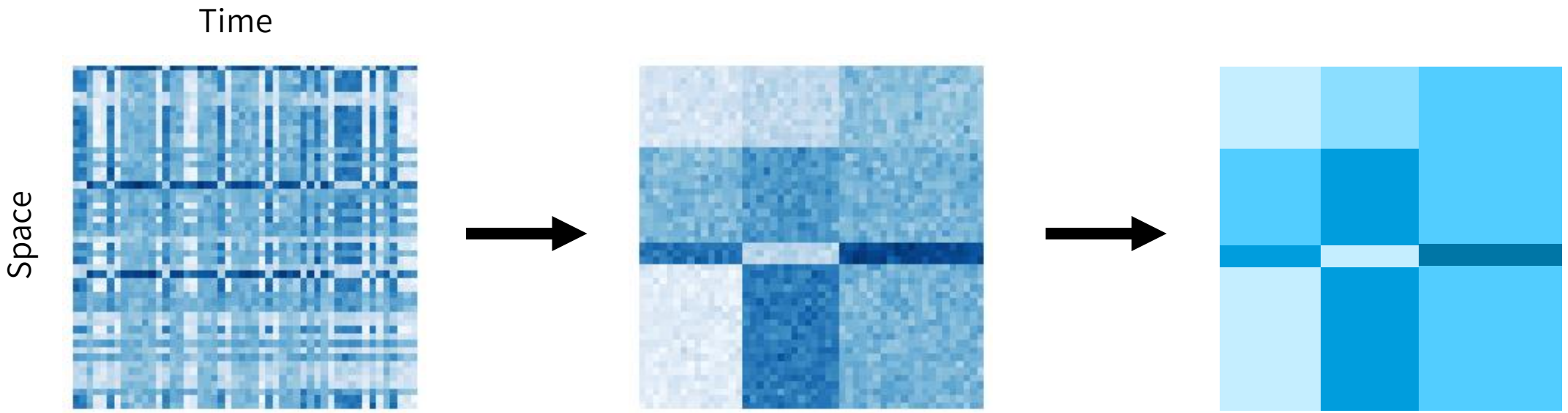
Clustering spatio-temporal data



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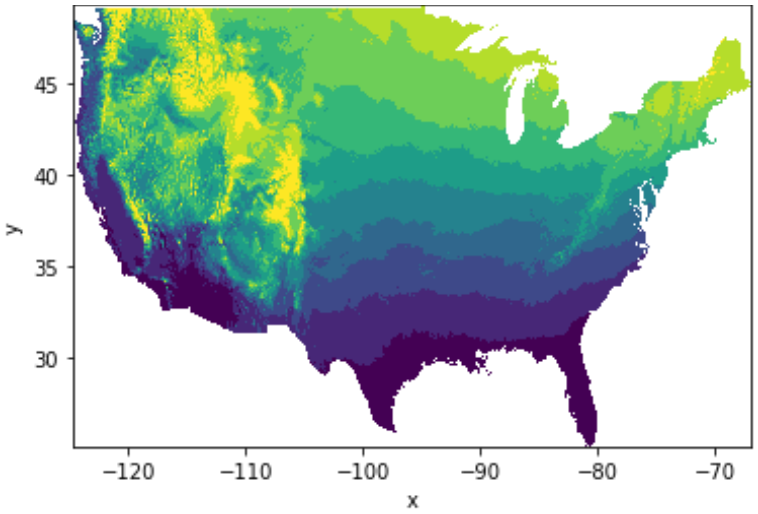
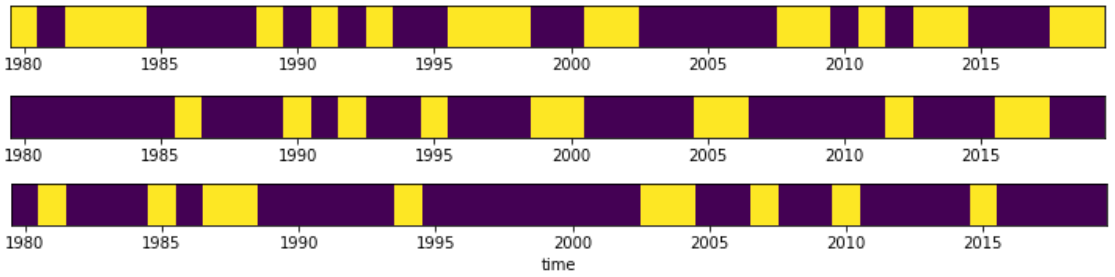
Use case: Identifying phenoregions

- Gridded spring indices (day of first leaf and bloom) at **continental scale** and **high resolution** (1 km) for three plant species.
- Extract phenological patterns (**co-clustering**) and correlation between indices (**tri-clustering**).



Space clusters



Time clusters

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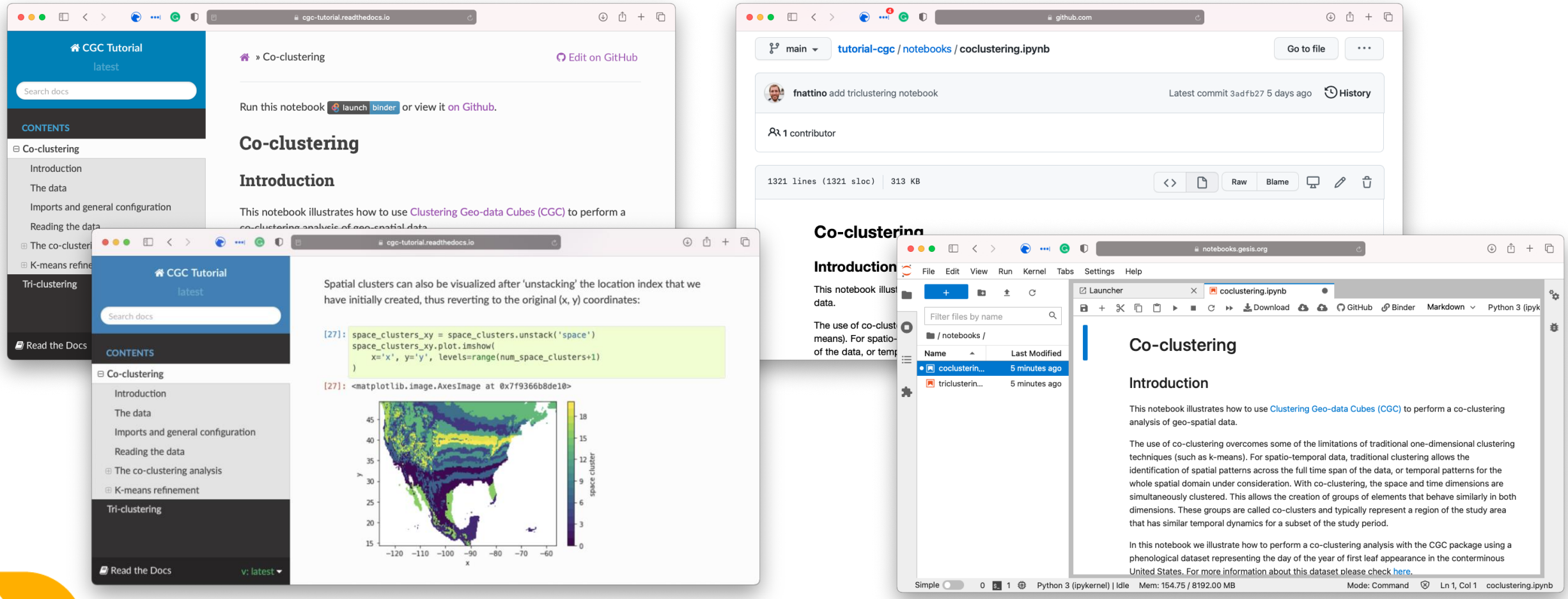
Tutorials



https://cgc-tutorial.readthedocs.io

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Let’s stay in touch

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