



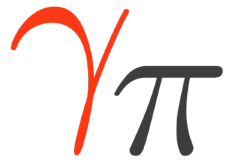
## Introduction to the April 2025 coding sprint

*IAC La Laguna  
2025-04-07*

# Releases since v1.0



- v1.0 (Long Term Stable) 2022 Nov 10th
  - v1.0.1 bug fix release 2023 March 14th
  - v1.0.2 bug fix release 2023 Dec 6th
- v1.1 feature release 2023 June 13th
- v1.2 feature release 2024 Feb 29th
- v1.3 feature release 2024 Nov 26th
- v2.0 (LTS): aim for June-July 2025



# What happened since v1.0?

- 4930 commits
- 773 merged PRs (excluding automated backports)
  - 98 for v1.1
  - 228 for v1.2
  - 237 for v1.3
  - 62 for v2.0 so far
  - + 80 manual backports for bugfix releases
- 4 coding sprint/co-working weeks
- 33 individual contributors since v1.0



# Objectives of the week

- Prepare last steps towards v2.0 release
  - check remaining bugs
  - code cleanup and
  - missing features
- Discuss contours of side project gammapy-mwl
- Check issues with a **coding sprint** label on GitHub
- GitHub [coding sprint project](#) to track progress



# Objectives of the week

gammapy / Projects / April 2025 - coding sprint

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🌐 April 2025 - coding sprint

Increased items preview

Feedback

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New view

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Filter by keyword or by field

Title	...	Assignees	...	Status	...	Linked pull requests
1  Adapt SensitivityEstimator to support MapDataset and joint datasets #4712		adonath, StFroese...		<div>Todo</div>		
2  Ideas for the high level interface #4717		QRemy		<div>In Progress</div>		
3  About the many correct ways to compute differential sensitivity #4718		QRemy, registerrie...		<div>Todo</div>		
4  Add spatial_model to FoVBackgroundMaker #5077		QRemy				
5  to_spectrum_dataset() loses background model #5173						
6  Simplify the Sensitivity Estimator Notebook #5282		adonath and tunbe...				
7  TemplateSpatialModel serialisation is not backward compatible #5549						
8  Improving peek() on 3D datasets #5570				<div>Todo</div>		
9  Template models are not read correctly #5682		Astro-Kirsty		<div>In Progress</div>		<div> #5727</div>
10  Add the functions sigma_to_ts and ts_to_sigma into the API documentation #5692				<div>Todo</div>		
11  TemplateSpatialModel serialisation #5695		Astro-Kirsty		<div>In Progress</div>		<div> #5724</div>
12  FluxProfileEstimator fails if reoptimize=True #5702		fabiopintore		<div>Todo</div>		
13  Add event selection per parameter value #5717		fabiopintore		<div>Todo</div>		

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You can use 

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 to add an item

# **v2.0: where do we stand?**

- **Data model and formats**
  - VODF formats are being prepared
  - two possible structures for event types:
    - distributed as independent HDUs (event lists / IRFs)
      - i.e. quasi-independent observations
    - distributed as single observation
      - one event list containing various event types
      - group of IRFs for a single observation
  - No events outside IRF time intervals
- **Need to adapt internal data model and API to support this in the future**

# **v2.0: where do we stand?**

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- **Data model and formats**
  - clarify the internal data model
    - introduce gadf independent EventList- todo
  - Introduce an IO module for `gammapy.data` - todo
  - define a metadata structure - done
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# **v2.0: where do we stand?**

- **Modeling : Flexible statistics API**

- Support priors in likelihood - done
- Split of statistics definition from datasets - done
  - Move prior calculations to Datasets - todo
- Support likelihood weights(à la Fermi) - done
- Introduce penalised likelihoods/multi-param priors - todo
- Additional FitStatistics?
  - e.g. support uncertainty on alpha - todo
  - pgstat? - todo
    - what connection with gammapy-mwl tools?



# **v2.0: where do we stand?**

- **Modeling API**

- Nested sampling support - done
  - tutorial - todo
  - support additional sampling backends - postpone?
- Models to support systematic uncertainties - todo
- Generalized model - postpone >2.0
  - discussion on associated PIG
- Handling the FitResult object.
  - Serialisable - done
  - Generalization for arrays of results - ?
    - drafts exist

# v2.0: where do we stand?

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- **Estimators:**
  - **introduce sensitivity estimation (a la Cowan et al)**
    - Introduce parameter sensitivity estimator - done
    - Support sensitive option in flux estimators - done
    - Adapt SensitivityEstimator - todo
    - Document new functionalities - todo

# v2.0: where do we stand?

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- **Performance**

- Support ray for distributed computing - Done
- Make Dataset distributable with same API - Done
- Probably rework Dataset API, split off model handling...
- Evaluate Jax for GPU acceleration and autograd - TODO

# v2.0: where do we stand?

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- **Documentation**

- Introduce a deprecation system - done
- Update pydata-sphinx-theme - done
- Cleanup css to follow default theme - done
- Remaining: see presentations Kirsty, Fabio

- **Infrastructure**

- Solve remaining warnings in tests - todo
- CI using ruff & pre-commit.ci - in progress
- Re-organize CI matrix - todo