



# ESCAPE

European Science Cluster of Astronomy &  
Particle physics ESFRI research Infrastructures



- **Tasks formulate main objectives**
- **Focus groups for day-to-day work**
  - Focus group 1: Collecting Software requirements (related to Task 3.2)
  - Focus group 2: Technical implementation of the repository (related to Task 3.5)
  - Focus group 3: Innovative workflows (related to Task 3.4)
  - Focus group 4: Distributed computing – currently dormant
  - Focus group 5: Common approaches to CORSIKA (related to Task 3.3)
  - Regular meetings, follow at <https://indico.in2p3.fr/category/844/>
- Cross-WG meetings, e.g. in the WP4 tech forum and WP5 tech meetings



# ESCAPE OSSR and Development Platform - how to ease the publication and integration process?

From a  
single  
click

- Publishes source code (updates your existing record with new versions)



- Long term archived
- Findable
- Citable



1. Make a new tag (release)
2. Let the CI do the rest

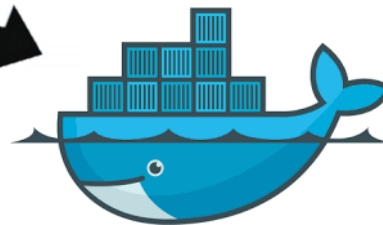
- builds a singularity image



- publishes singularity image

under  
dev

- builds a docker container



- publishes





# Example project: The Crab bundle

The Crab multi-instrument gamma-ray analysis with MAGIC, VERITAS, FACT and H.E.S.S.

<https://zenodo.org/record/2381863#.XkxcD5NKhhA>

<https://github.com/open-gamma-ray-astro/joint-crab/tree/v0.1>

license

The screenshot shows the Zenodo project page for 'The joint-crab bundle'. Annotations include:

- Source code and data:** Points to the file list on the left, specifically to the 'data' folder containing FITS files.
- Link to project and article:** Points to the 'DOI: 10.5281/zenodo.2381863' and the 'Cited by' section.
- Cite as:** Points to the 'Cite as' section, which provides the citation text: 'C. Nigro, C. Deil, R. Zanin, T. Hassan, J. King, J.E. Ruiz, ... A. Sinha (2018, December 18). The joint-crab bundle (Version v0.1). Zenodo. http://doi.org/10.5281/zenodo.2381863'.
- license:** Points to the 'License (for files): BSD 3-Clause Clear License' section.

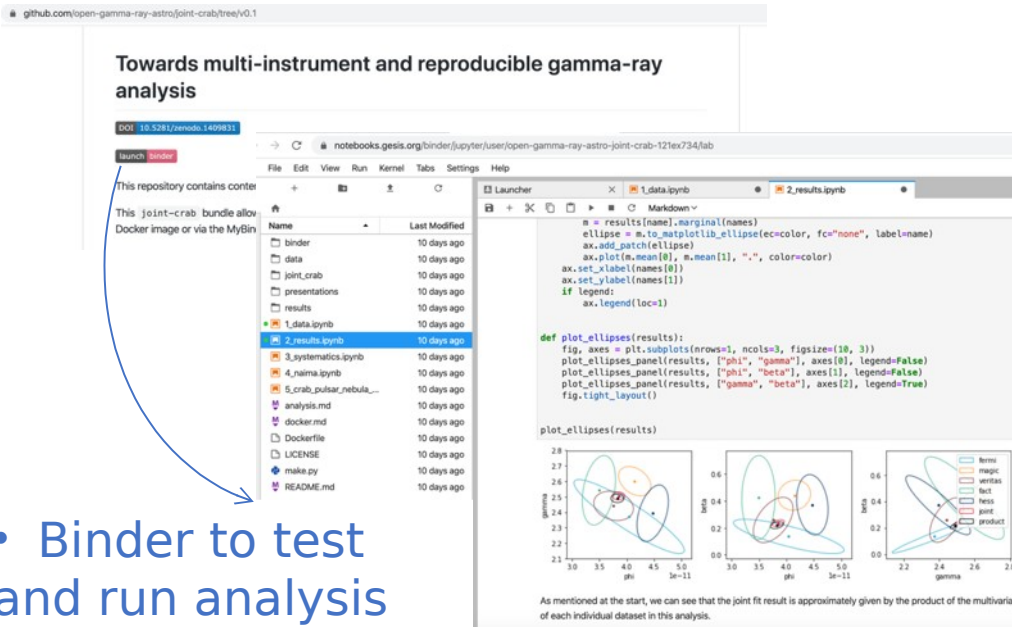


# Example project: The Crab bundle

The Crab multi-instrument gamma-ray analysis with MAGIC, VERITAS, FACT and H.E.S.S.

<https://zenodo.org/record/2381863#.XkxcD5NKhhA>

<https://github.com/open-gamma-ray-astro/joint-crab/tree/v0.1>



**Towards multi-instrument and reproducible gamma-ray analysis**

notebooks.gesis.org/binder/jupyter/user/open-gamma-ray-astro-joint-crab-121ex734/lab

This repository contains content  
This joint-crab bundle allow  
Docker image or via the MyBin

Name	Last Modified
binder	10 days ago
data	10 days ago
joint_crab	10 days ago
presentations	10 days ago
results	10 days ago
1_data.ipynb	10 days ago
2_results.ipynb	10 days ago
3_systematics.ipynb	10 days ago
4_nama.ipynb	10 days ago
5_crab_pulsar_nebula...	10 days ago
analysis.md	10 days ago
docker.md	10 days ago
Dockerfile	10 days ago
LICENSE	10 days ago
make.py	10 days ago
README.md	10 days ago

```

m = results[name].marginal(names)
ellipse = m.to_matplotlib_ellipse(ec=color, fc="none", label=name)
ax.add_patch(ellipse)
ax.plot(m.mean[0], m.mean[1], ".", color=color)
ax.set_xlabel(names[0])
ax.set_ylabel(names[1])
if legend:
    ax.legend(loc=1)

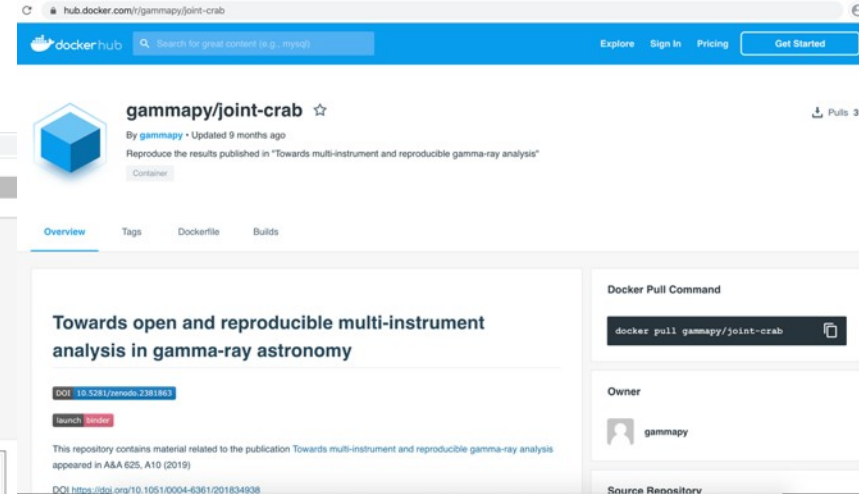
def plot_ellipses(results):
    fig, axes = plt.subplots(nrows=1, ncols=3, figsize=(10, 3))
    plot_ellipses_panel(results, ["phi", "gamma"], axes[0], legend=False)
    plot_ellipses_panel(results, ["phi", "beta"], axes[1], legend=False)
    plot_ellipses_panel(results, ["gamma", "beta"], axes[2], legend=True)
    fig.tight_layout()

plot_ellipses(results)

```

As mentioned at the start, we can see that the joint fit result is approximately given by the product of the multivariate normal approximation for  $t$  of each individual dataset in this analysis.

- Binder to test and run analysis interactively online



dockerhub

gammapy/joint-crab

By gammapy · Updated 9 months ago

Reproduce the results published in "Towards multi-instrument and reproducible gamma-ray analysis"

Docker Pull Command

```
docker pull gammapy/joint-crab
```

Owner

gammapy

Source Repositor

**Towards open and reproducible multi-instrument analysis in gamma-ray astronomy**

DOI: 10.5281/zenodo.1499831

This repository contains material related to the publication Towards multi-instrument and reproducible gamma-ray analysis appeared in A&A 625, A10 (2019)

DOI: <https://doi.org/10.1051/0004-6361/201834938>

- Docker to ensure reproducibility



- Task 3.5 - Repository Implementation and Deployment – T. Vuillaume (CNRS-LAPP):
  - partner feedback for the repository gathered;
  - preliminary design of the repository and the definition of technical solutions for its implementation
  - first prototype set up for internal use, webinar held on usage
- Prototype development platform:  
[Gitlab instance](#)
- Prototype repository:  
[Zonodo Community](#)

