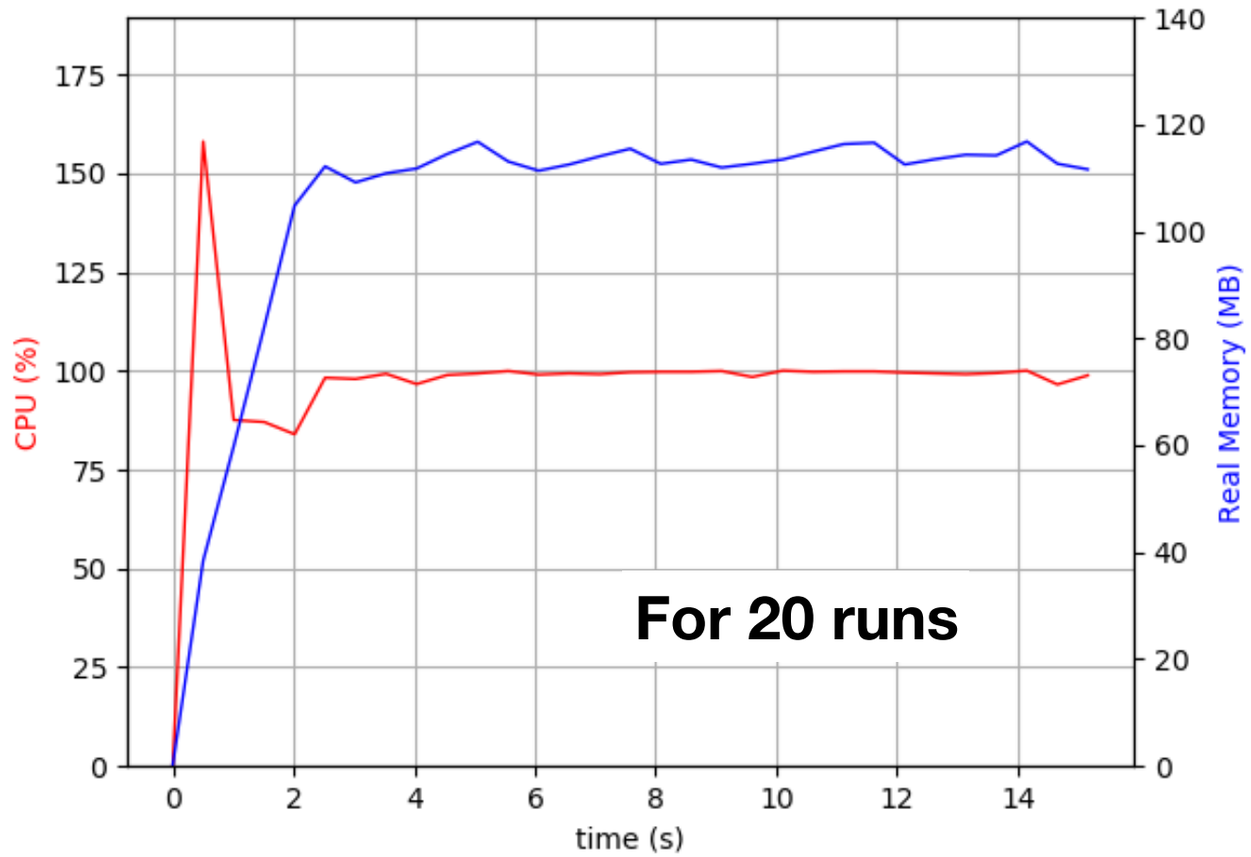
 -benchmarks

- AIM: Performance benchmarks for gammapy
- Link: https://github.com/gammapy/gammapy-benchmarks/blob/master/benchmarks/README.md
- Doing this was a good exercise - many issues came up
- Currently, 7 benchmarks - all seem to be working as expected

1D stacked analysis

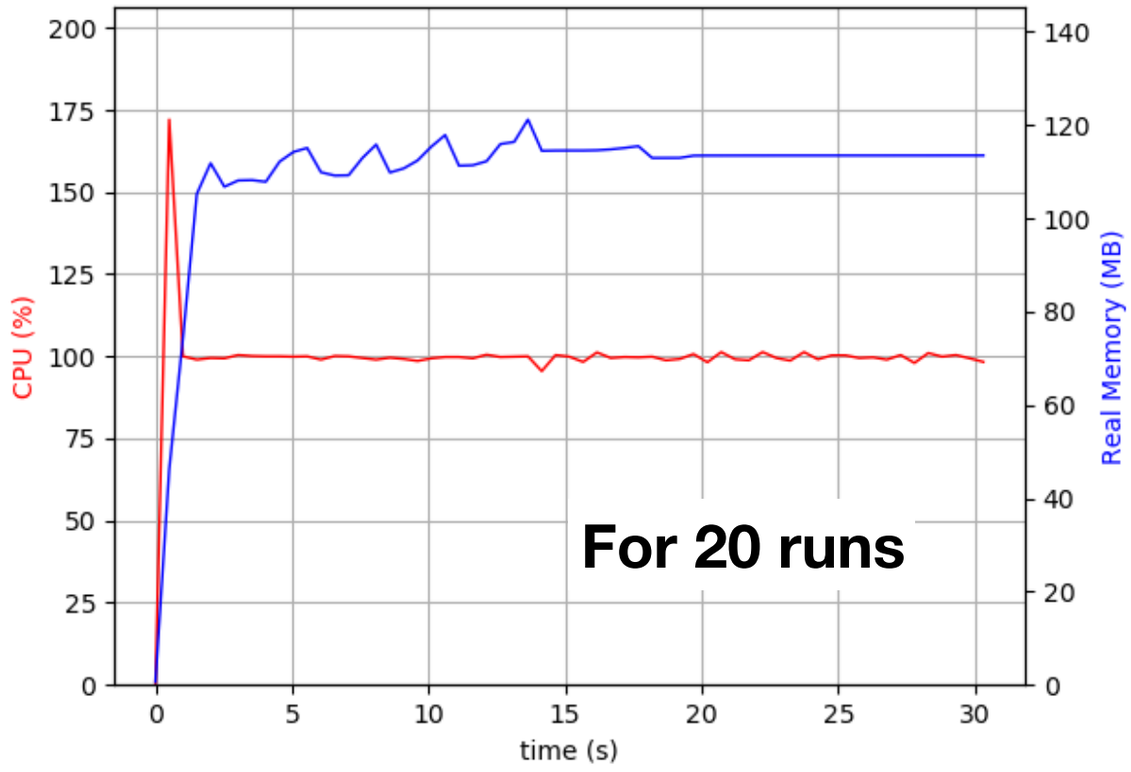



```
data_preparation: 6.49084997177124
writing: 0.12947916984558105
reading: 0.08890080451965332
data_fitting: 0.06629109382629395
flux_point: 0.6222870349884033
```

```
data_preparation: 12.760003805160522
writing: 0.12907910346984863
reading: 0.089630126953125
data_fitting: 0.07059407234191895
flux_point: 0.5860438346862793
```

Comparison of 10 and 20 runs

1D joint analysis

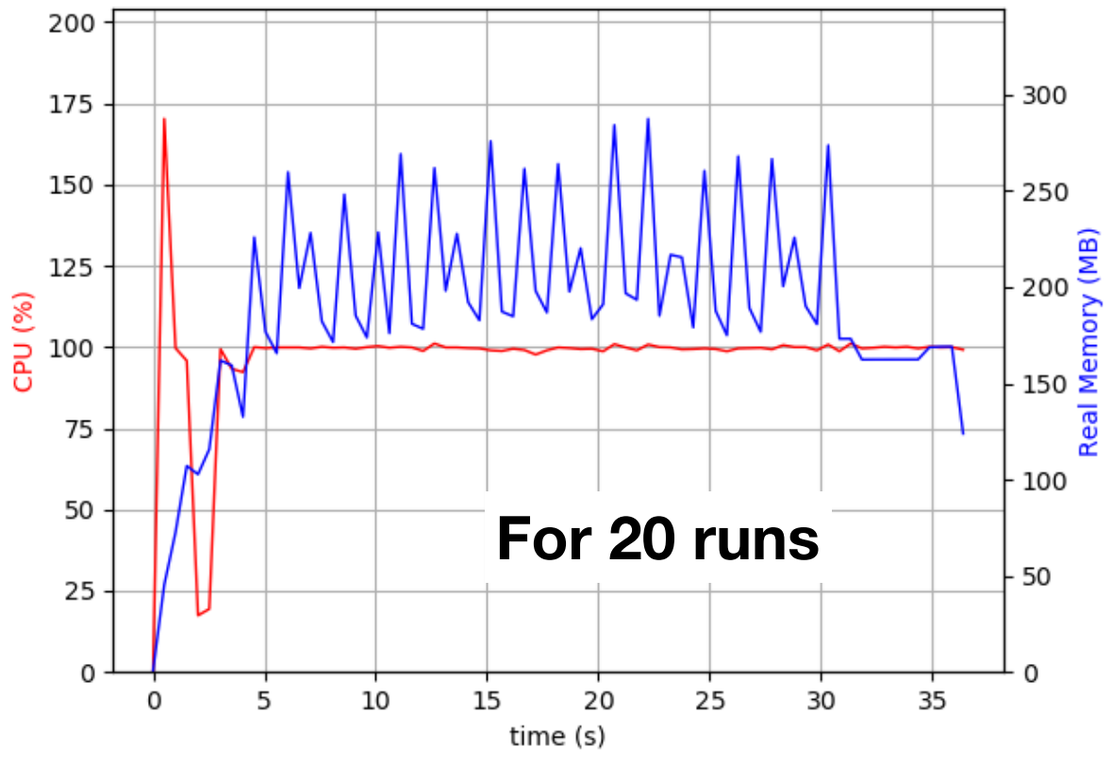



```
data_preparation: 6.62027907371521
writing: 1.1609628200531006
reading: 0.889721155166626
data_fitting: 0.6972498893737793
flux_point: 5.395028114318848
```

```
data_preparation: 12.66777491569519
writing: 2.321803092956543
reading: 1.822662353515625
data_fitting: 1.3308169841766357
flux_point: 11.199066162109375
```

Comparison of 10 and 20 runs

3D stacked analysis

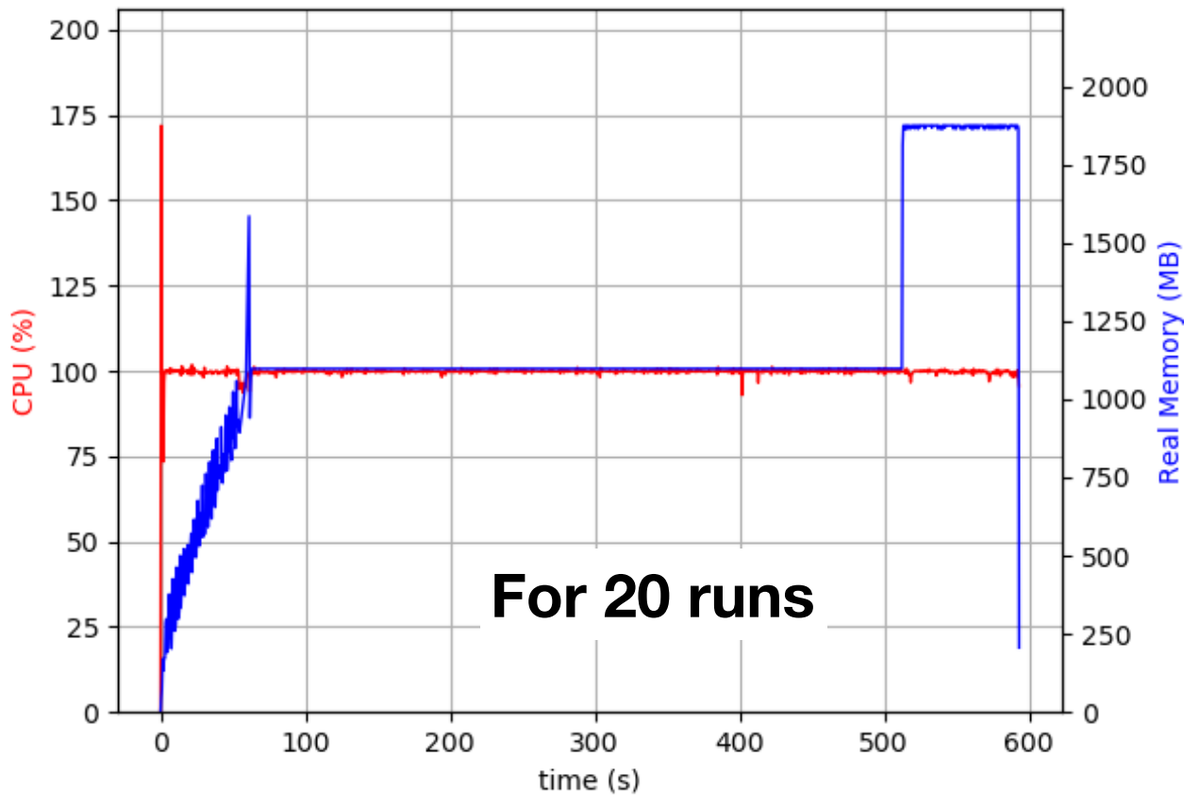



```
data_preparation: 15.296000003814697
writing: 0.5479309558868408
reading: 0.34554004669189453
data_fitting: 3.2952499389648438
flux_point: 1.5389289855957031
```

```
data_preparation: 29.46461796760559
writing: 0.4709291458129883
reading: 0.3407292366027832
data_fitting: 3.2674720287323
flux_point: 1.526402235031128
```

Comparison of 10 and 20 runs

3D joint analysis

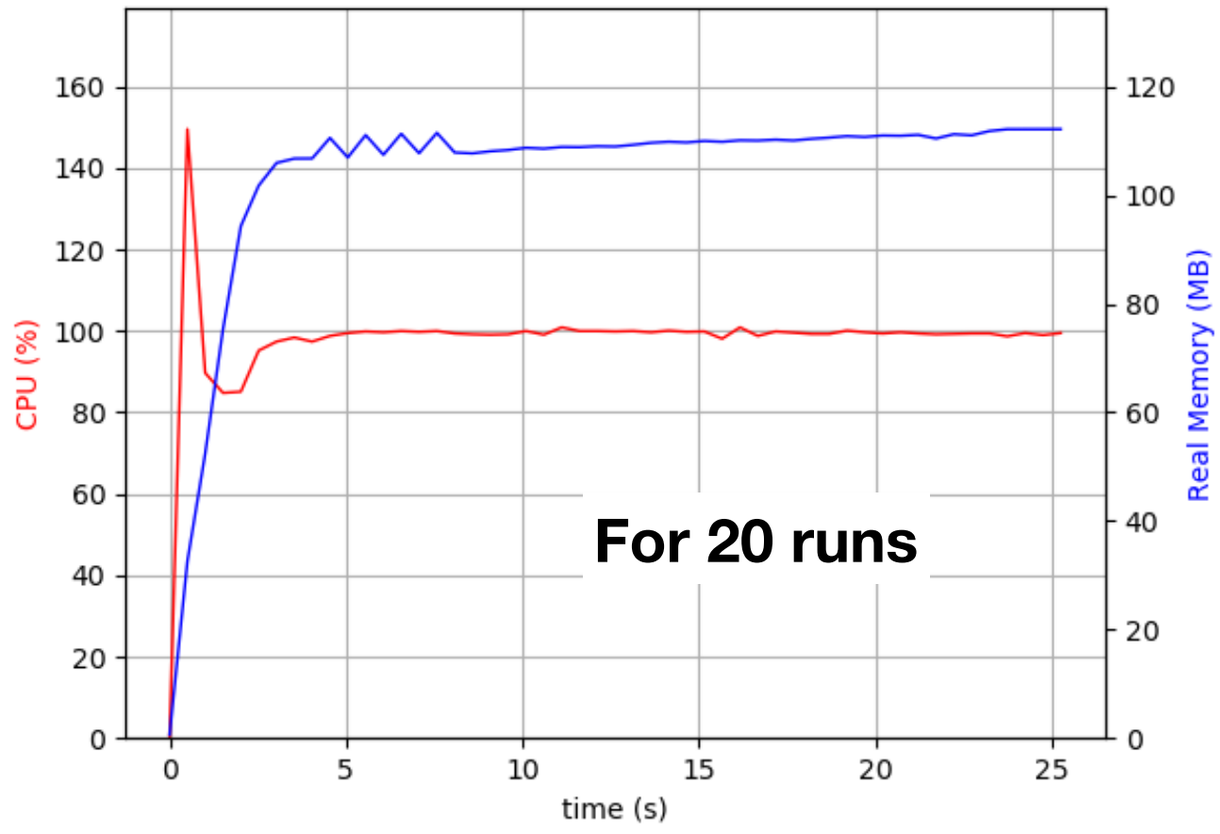



```
data_preparation: 26.195430040359497
writing: 2.3209080696105957
reading: 1.0197551250457764
data_fitting: 157.49387907981873
flux_point: 35.81381702423096
```

```
data_preparation: 53.01461601257324
writing: 4.892690896987915
reading: 2.2559969425201416
data_fitting: 450.8782501220703
flux_point: 80.6631760597229
```

Comparison of 10 and 20 runs

1D ligntcurve analysis

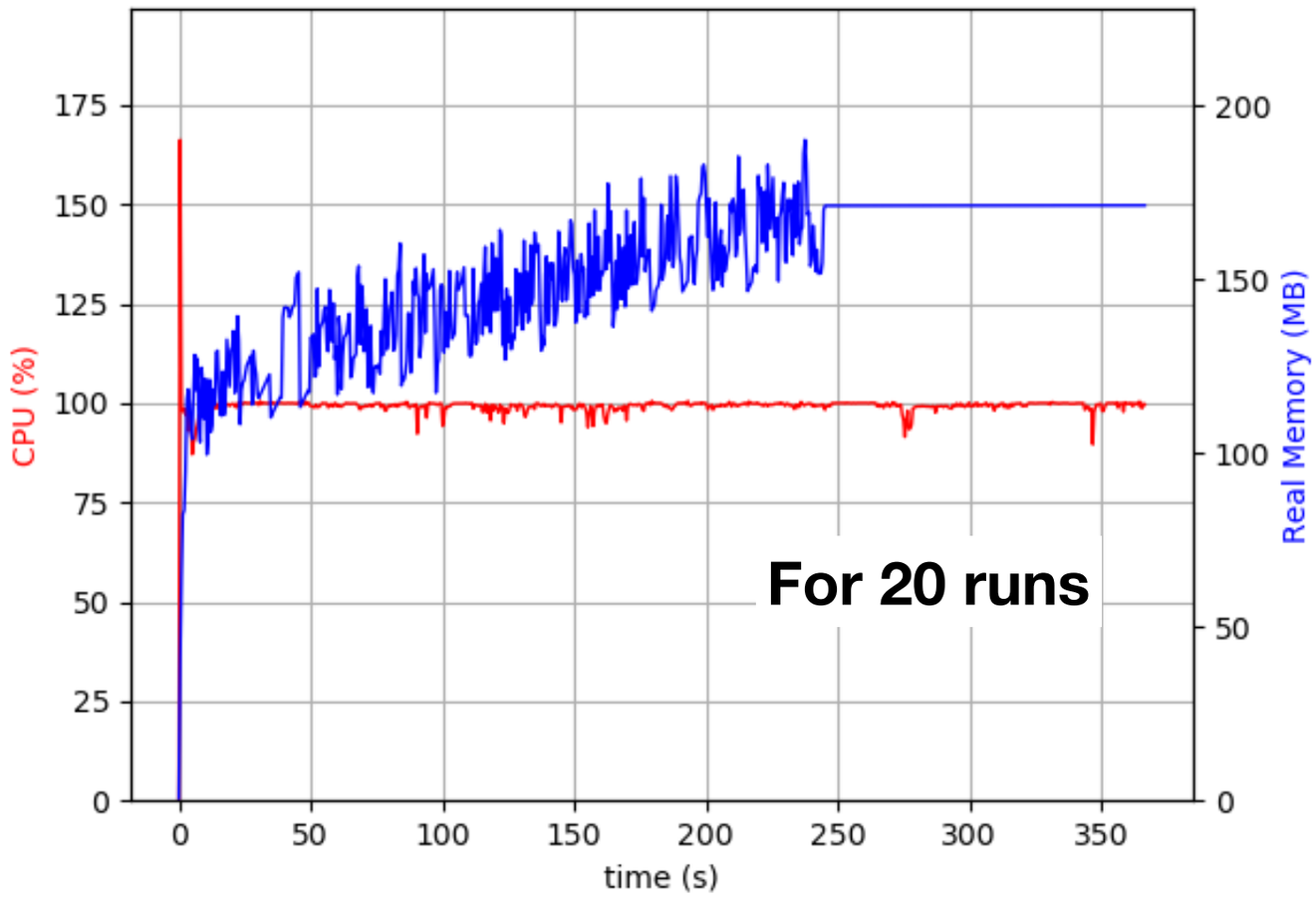



```
data_preparation: 8.300799131393433
data_fitting: 0.7847259044647217
```

```
data_preparation: 21.591298818588257
data_fitting: 2.1348090171813965
```

Comparison of 10 and 20 runs

3D lightcurve analysis




```
data_preparation: 56.94922709465027
data_fitting: 60.62541890144348
```

```
data_preparation: 240.83079504966736
data_fitting: 124.34663391113281
```

Comparison of 10 and 20 runs

- Results for 100 runs on the current master - https://github.com/gammapy/gammapy-benchmarks/blob/master/benchmarks/results/results.yaml

Issues and to-do

- Add more benchmarks? - simulation/ image analysis?
- Error computation not included at present (should!)
- Currently there are no asserts - possibility of going haywire?
- Should work on the latest gammapy/master - how to ensure?
- Nice to make it user friendly - pass some options from command line