

# Zarr: optimized cloud storage

## zarr ZipStore vs DirectoryStore

1. in DirectoryStore, 1 chunk = 1 file. For 3d monthly variable (60 yr run), this amounts to a lot. ZipStore = 1 file!!!

```
directory_store/.7/theta0/.zmetadata
(base) PPAN: Raphael.Dussin@an104 perf_tests: find directory_store/. -type f | wc -l
25697
(base) PPAN: Raphael.Dussin@an104 perf_tests: find zipstore/. -type f | wc -l
1
```

2. Similar performance using dask cluster:

```
[4]: rootdir = '/work/Raphael.Dussin/zarr_stores/perf_tests/'
```

```
zds = xr.open_zarr(f'{rootdir}/zipstore/theta0.zip', consolidated=True)
dds = xr.open_zarr(f'{rootdir}/directory_store/theta0', consolidated=True)
```

```
[44]: zm = zds['theta0'].mean(dim='time')
```

```
[45]: %%time
      zm.load()
```

```
CPU times: user 3min 31s, sys: 10.1 s, total: 3min 41s
Wall time: 11min 51s
```

```
[46]: dm = dds['theta0'].mean(dim='time')
```

```
[47]: %%time
      dm.load()
```

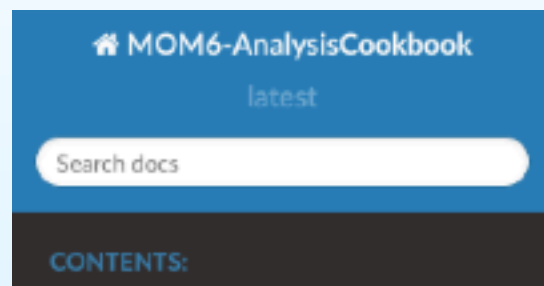
```
CPU times: user 3min 43s, sys: 11.2 s, total: 3min 54s
Wall time: 13min 45s
```

3. ZipStore not as commonly used as DirectoryStore hence some bugs found along the way (and fixed)



# Useful doc for MOM6

<https://mom6-analysiscookbook.rtfd.io>



## 📖 Cookbook

Setting up a DASK cluster using dask-jobqueue

Setting up a DASK cluster on your local machine

Getting started with MOM6

Time-based operations

Spatial Operations


Vorticity-based diagnostics

Computations for Potential density, buoyancy and geostrophic shear

Horizontal Remapping

Creating nice maps with xarray

Comparing MOM6 data to hydrographic section



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## Cookbook

Here are recipes for doing some xarray-based analysis with MOM6.

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  - [Your DASK cluster at work](#)
- [Setting up a DASK cluster on your local machine](#)
  - [Sample computation:](#)
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- [Computations for Potential density, buoyancy and geostrophic shear](#)
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