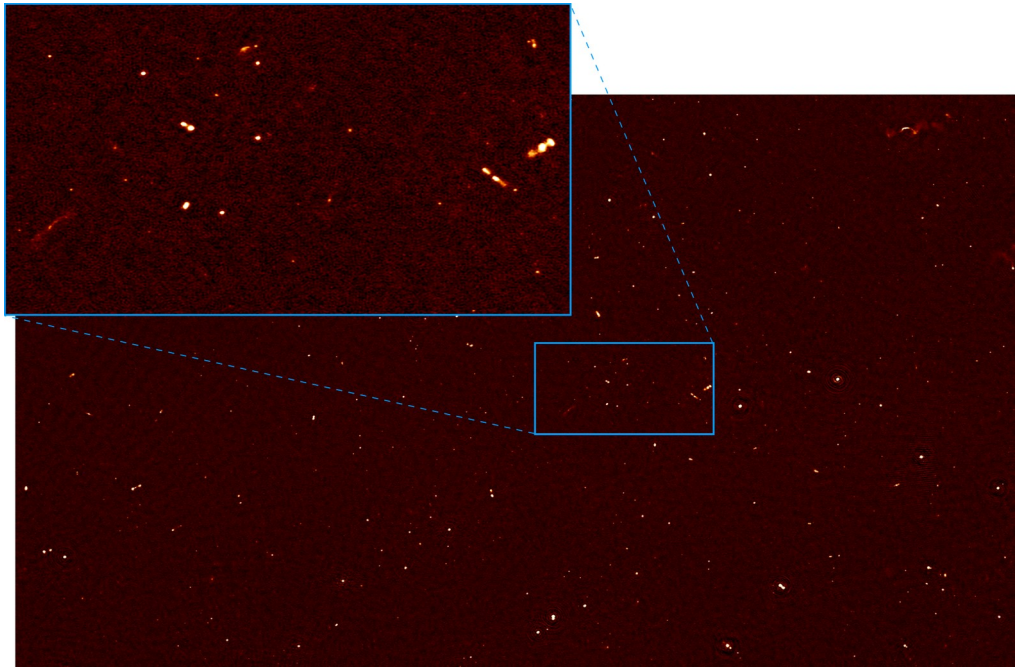
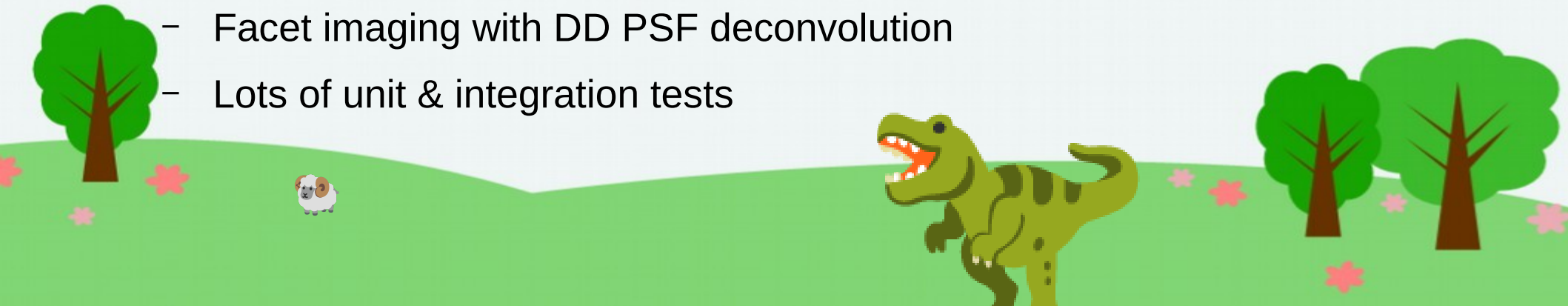
Rapthor pipeline

- HBA-NL direction-dependent calibration
- Mostly reusable for LBA
- Status:
  - Functional, stable, deployable
  - Most tested fields produce competitive results, but not all
  - Much slower than state of the art



Rapthor pipeline: recent additions

- Recent new features:
  - Use of solve with direction-dependent intervals
  - Stokes IQUV imaging
  - Image feathering
  - Several improvements to how facets are defined (→ stability)
  - Lots of automated quality assurance checks and plots
  - Facet imaging with DD PSF deconvolution
  - Lots of unit & integration tests



Rapthor: future direction 

- Deploy / integrate in SDC → Produce DD products by default
- Speed improvements:
  - ✅ Faster (3x) beam prediction
  - ✅ Solve h5parm solution speed bug
  - Image-based prediction
  - Reuse model data in calibration
  - Multi-node processing (about to be finished)
  - Use baseline-dependent averaging in solver
  - Use of GPUs for most expensive tasks
- Expected is that all of this must be solved before LOFAR2.0 starts