

Moving Object Pipeline System (MOPS)

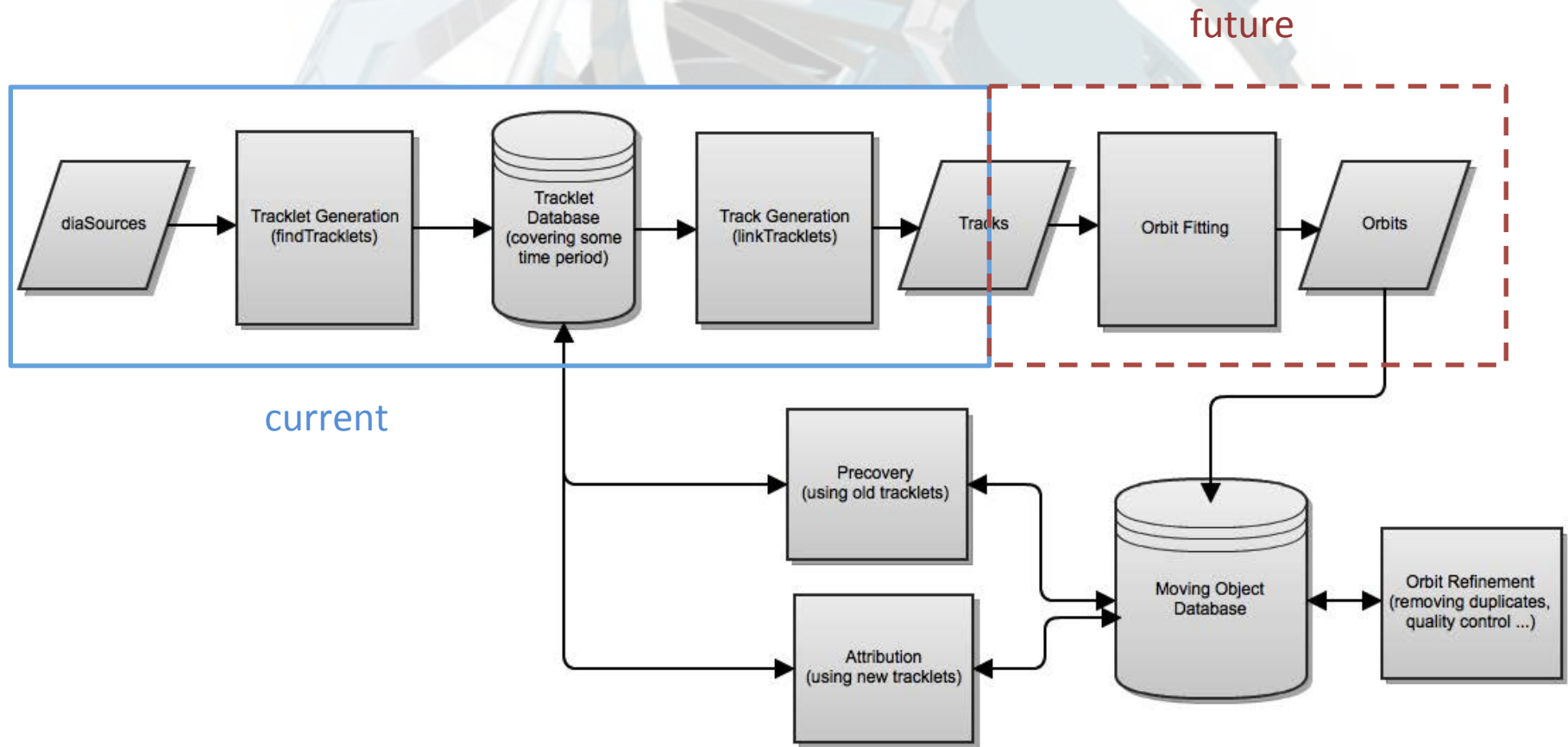
[LDM-156](#)

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Basics

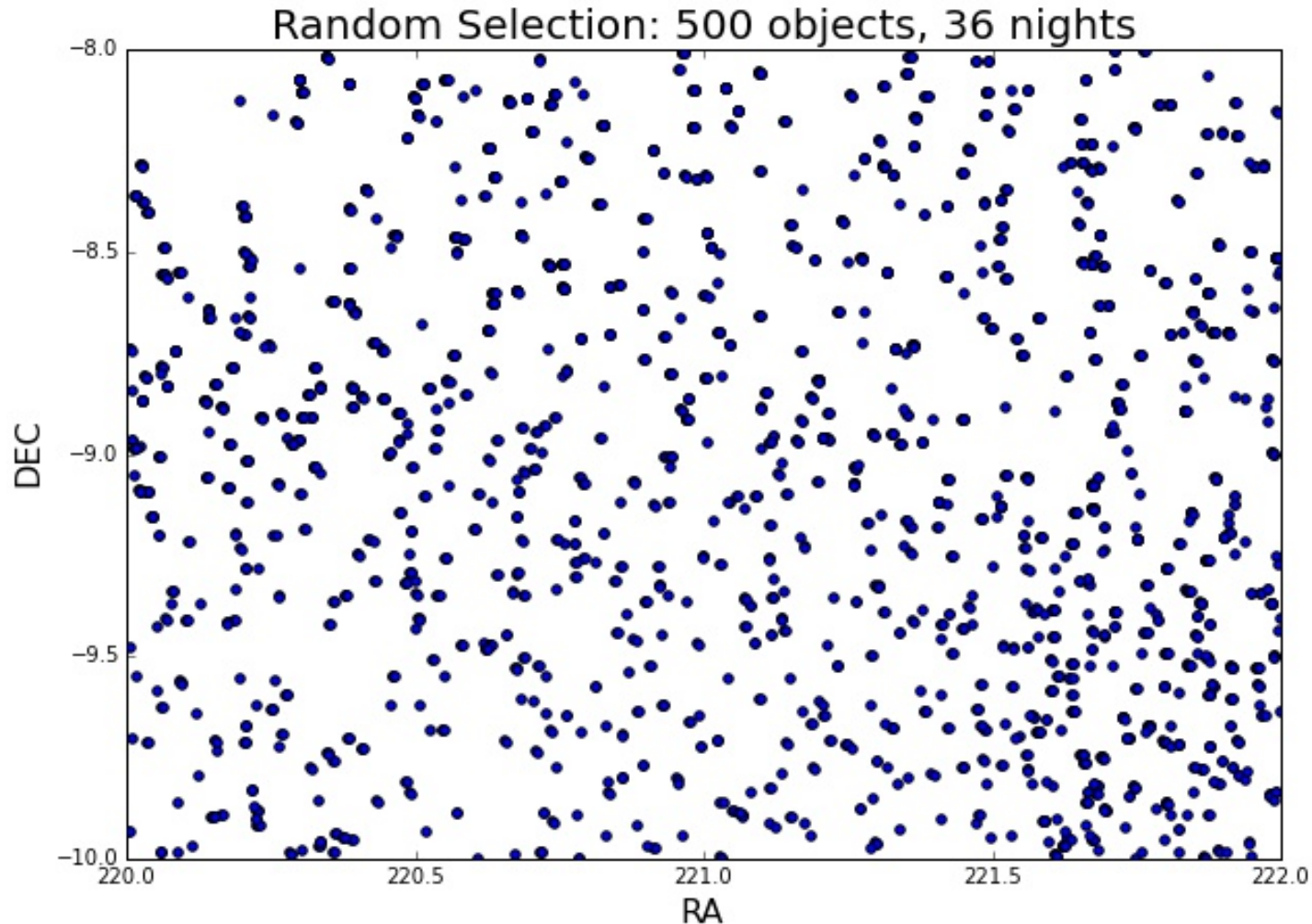
- Installs on Linux and Mac OSX
- On [github](#) (lsst/mops_daymops)
 - Requires gsl, eigen, boost
 - Currently uses SLALIB
 - Experimental branch uses PAL instead
- Latest updates and commits:
 - [neosim](#) (scripts/experimentation)
 - [fork](#) (updates/fixes)

In Context



findTracklets

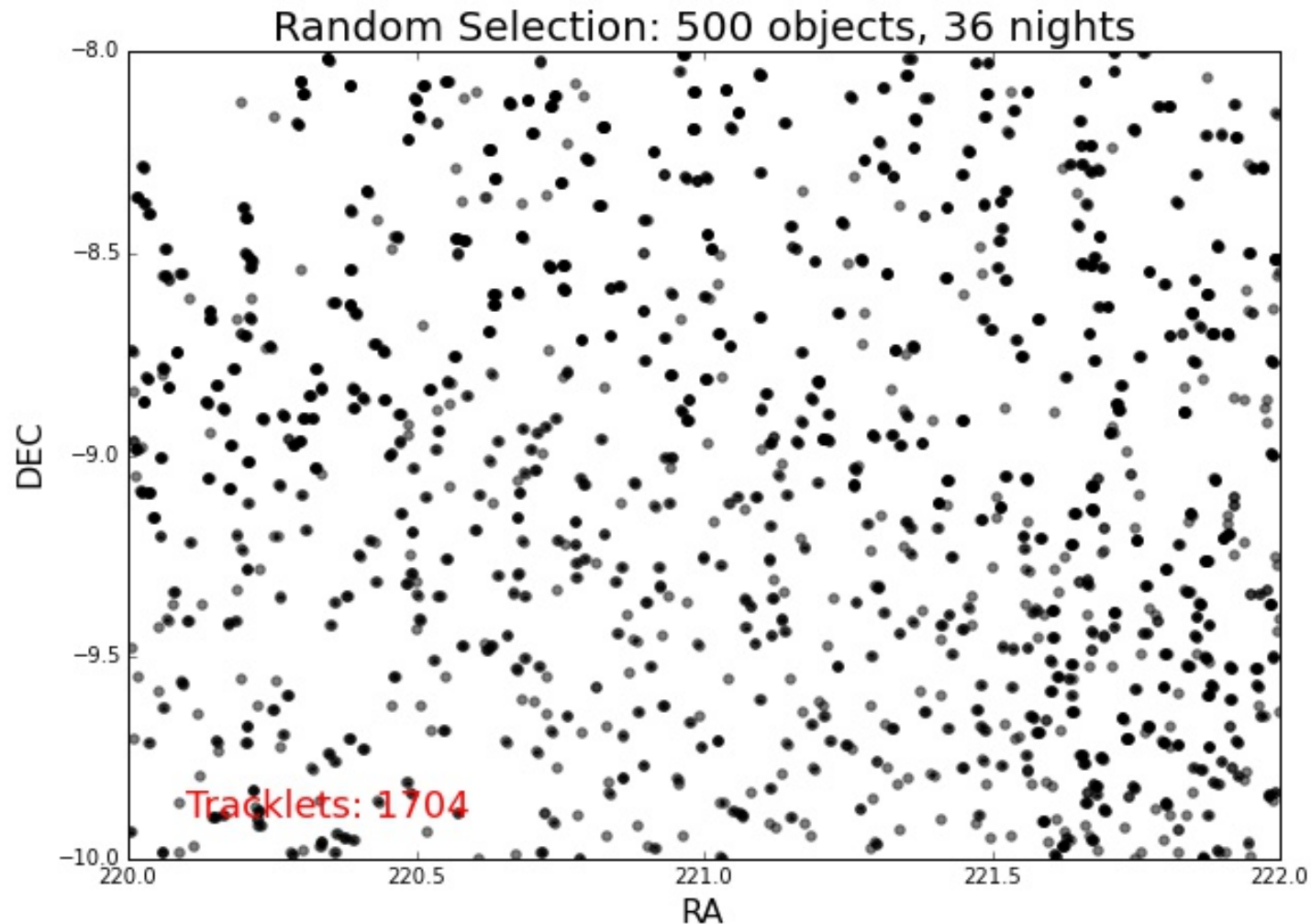
Links two DiaSource detections occurring within one night into a **tracklet**,
assumes linear motion



findTracklets – collapseTracklets – purifyTracklets – removeSubsets – linkTracklets

findTracklets

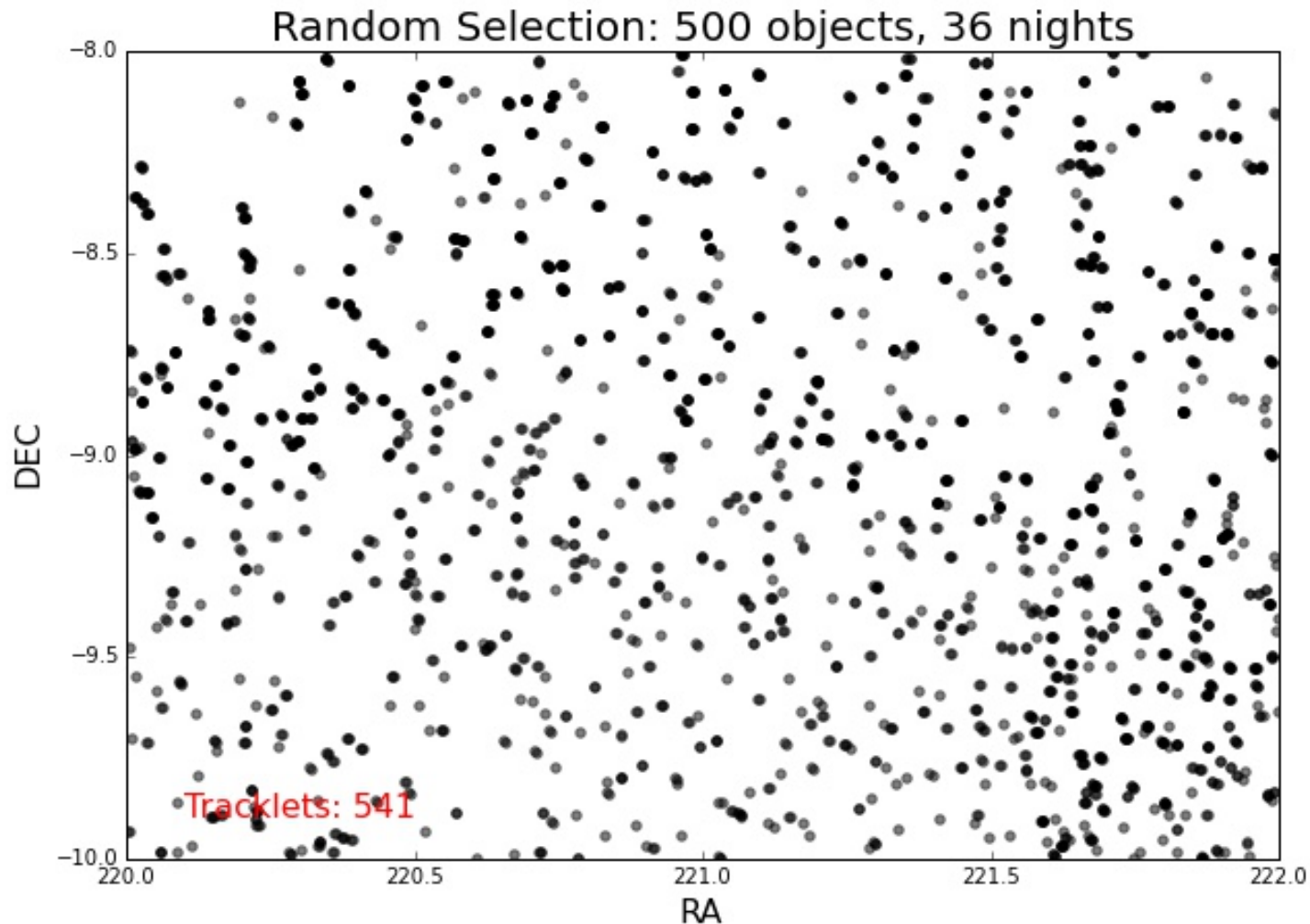
Links two DiaSource detections occurring within one night into a **tracklet**,
assumes linear motion



findTracklets – collapseTracklets – purifyTracklets – removeSubsets – linkTracklets

collapseTracklets

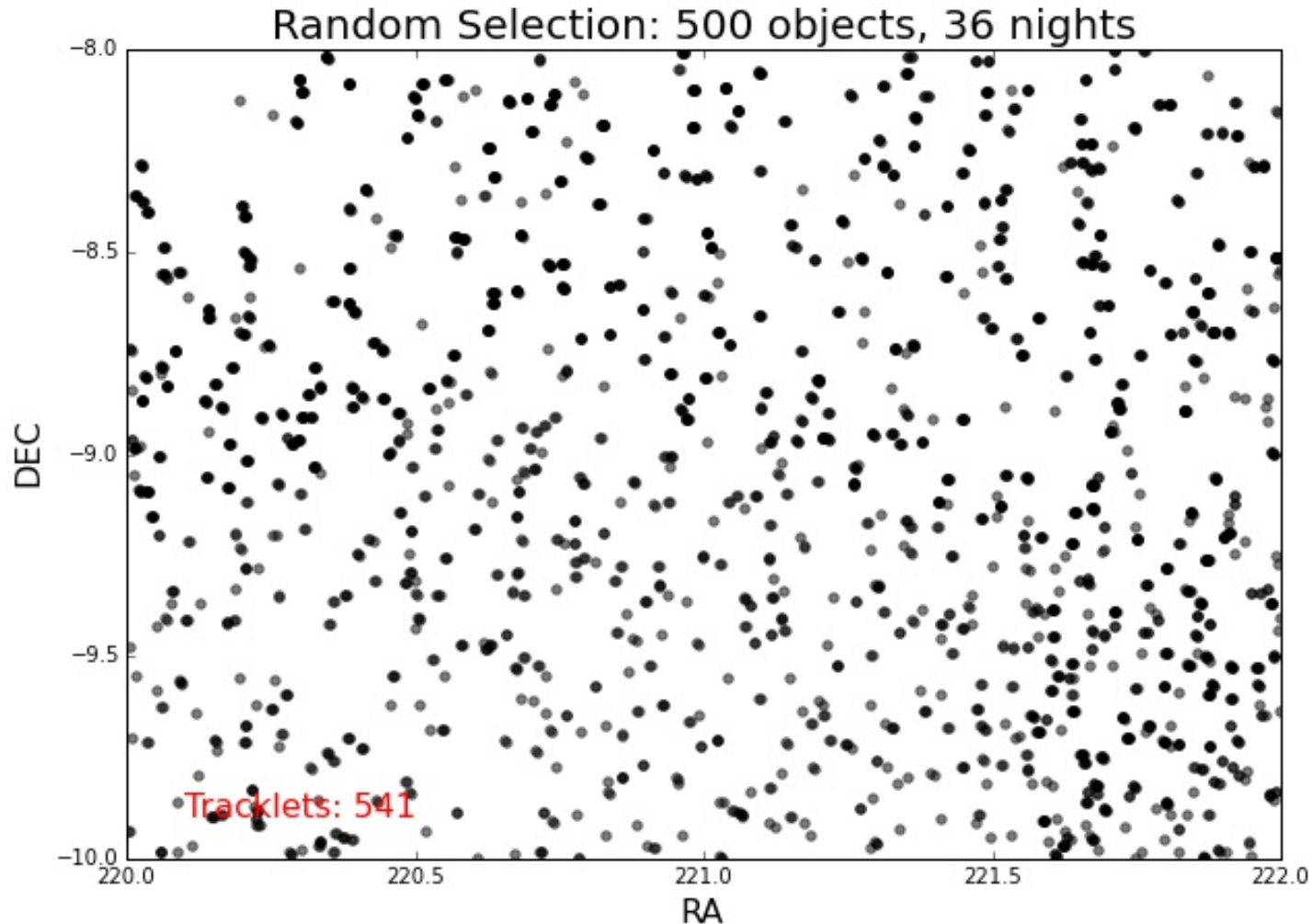
Merges collinear **tracklets**



findTracklets – collapseTracklets – purifyTracklets – removeSubsets – linkTracklets

purifyTracklets

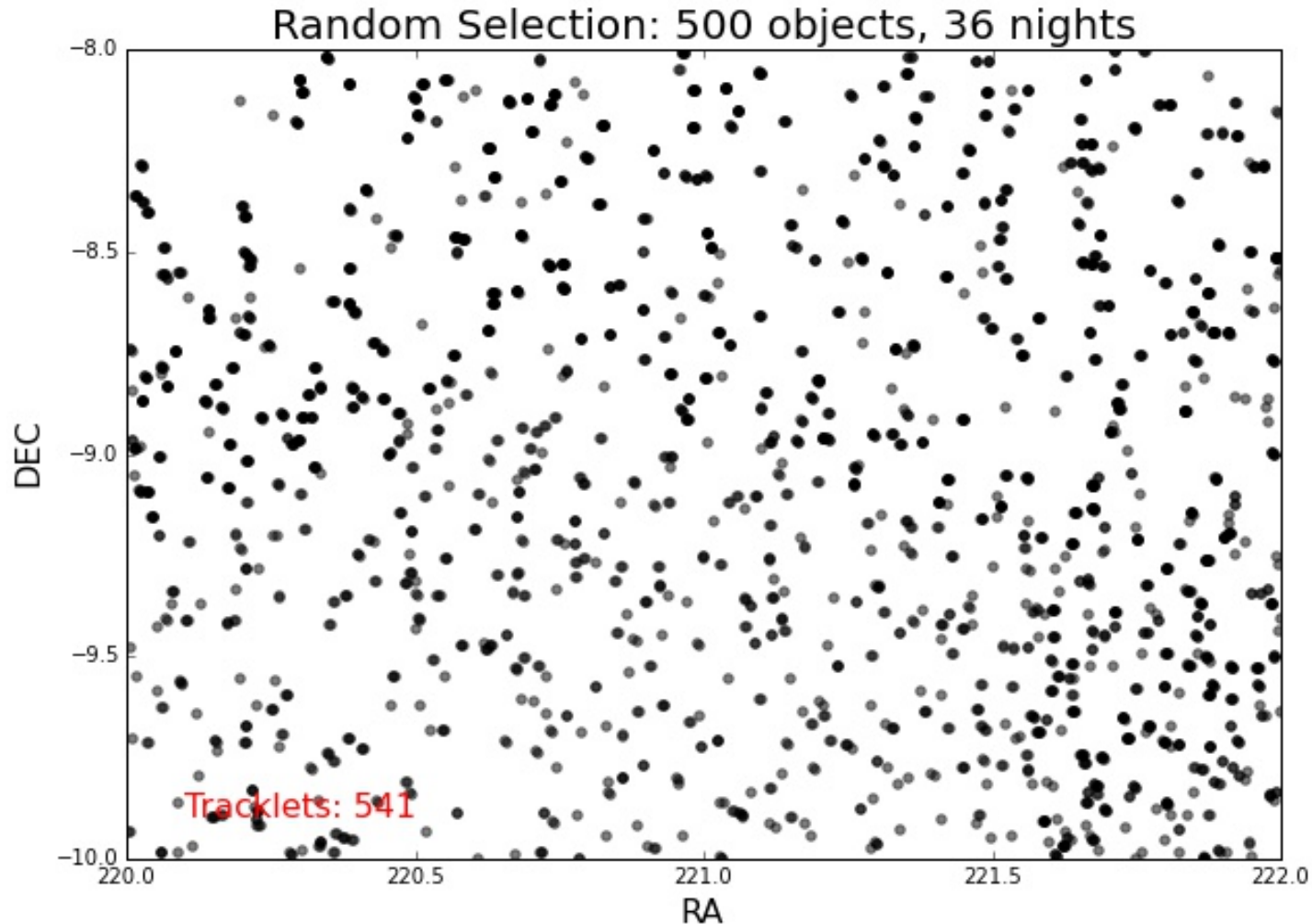
Removes detections from merged **tracklets** if they are sufficiently far away from the best-fit line



findTracklets – collapseTracklets – **purifyTracklets** – removeSubsets – linkTracklets

removeSubsets

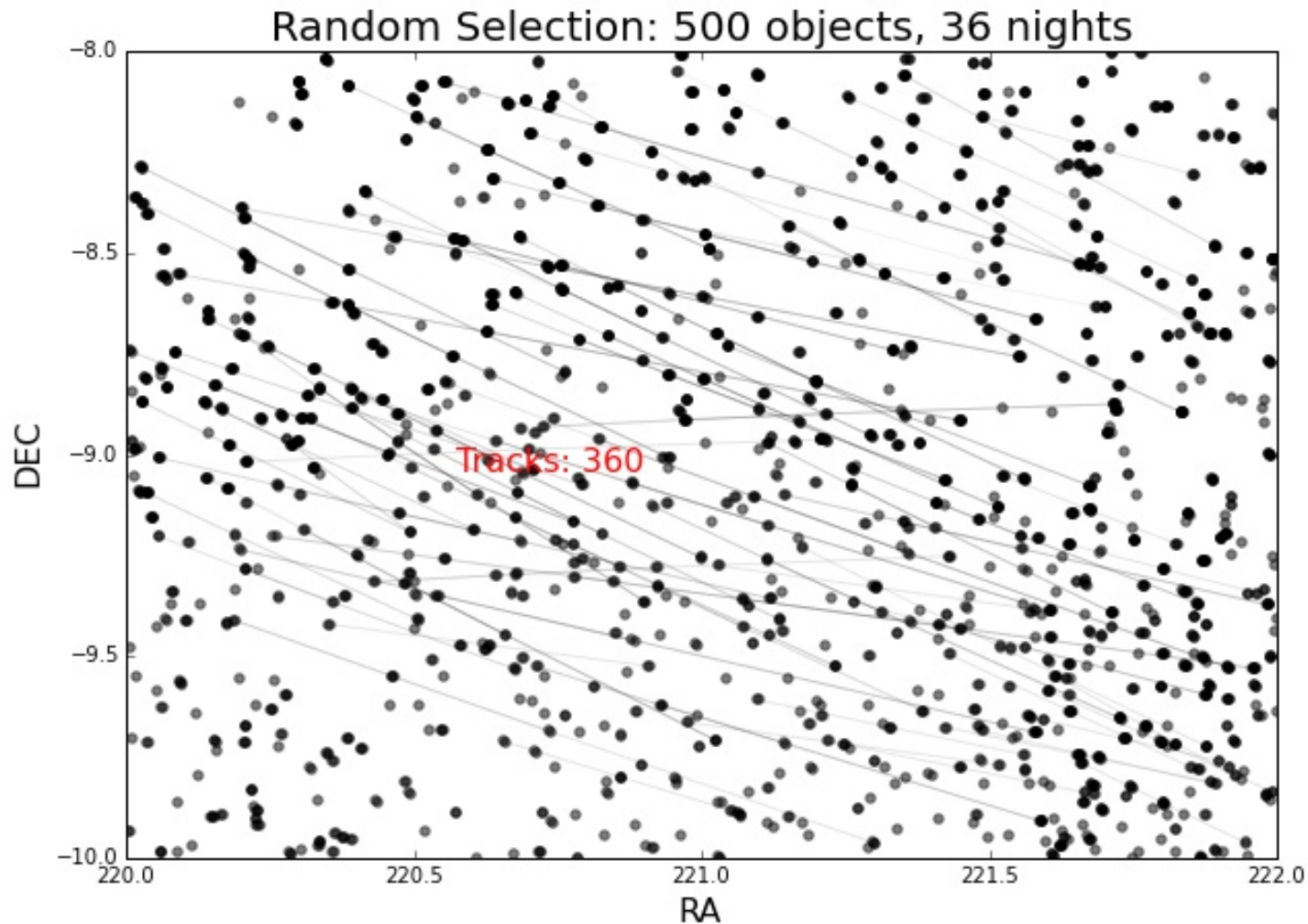
Removes **tracklets** that are subsets of longer **tracklets**



findTracklets – collapseTracklets – purifyTracklets – **removeSubsets** – linkTracklets

linkTracklets

Links **tracklets** into **tracks**, *assumes quadratic fit*



findTracklets – collapseTracklets – purifyTracklets – removeSubsets – linkTracklets

Status

- Run script
 - Accepts config file
 - Command line parameter specification with accepted defaults
 - Uses tracker and parameter object
- Unittest
- Experimental PAL branch
 - Compiles on Linux and Mac
 - Error: fails unittest
- Tested up to linkTracklets
 - Error: has trouble moving data in 180 degree range despite no complaints from collapse, purifyTracklets

Future

- Fix errors/bugs
- Make function inputs consistent
- Run failure tests
- Run efficiency tests
 - Understand scaling with larger datasets
- Add orbit determination
- Plotting and visualization tools
- Analysis tools