



Best Track: Object-Based Path Identification

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Description:

Best track is an open-source Python package and algorithm designed to identify and optimize geotemporal paths from user-provided coordinate objects (cells) or collections of coordinate objects (tracks).

Package Information:

Dependencies

- Numpy, SciPy, Matplotlib
- Basemap, Shapely
- BeautifulSoup4

Supported Input

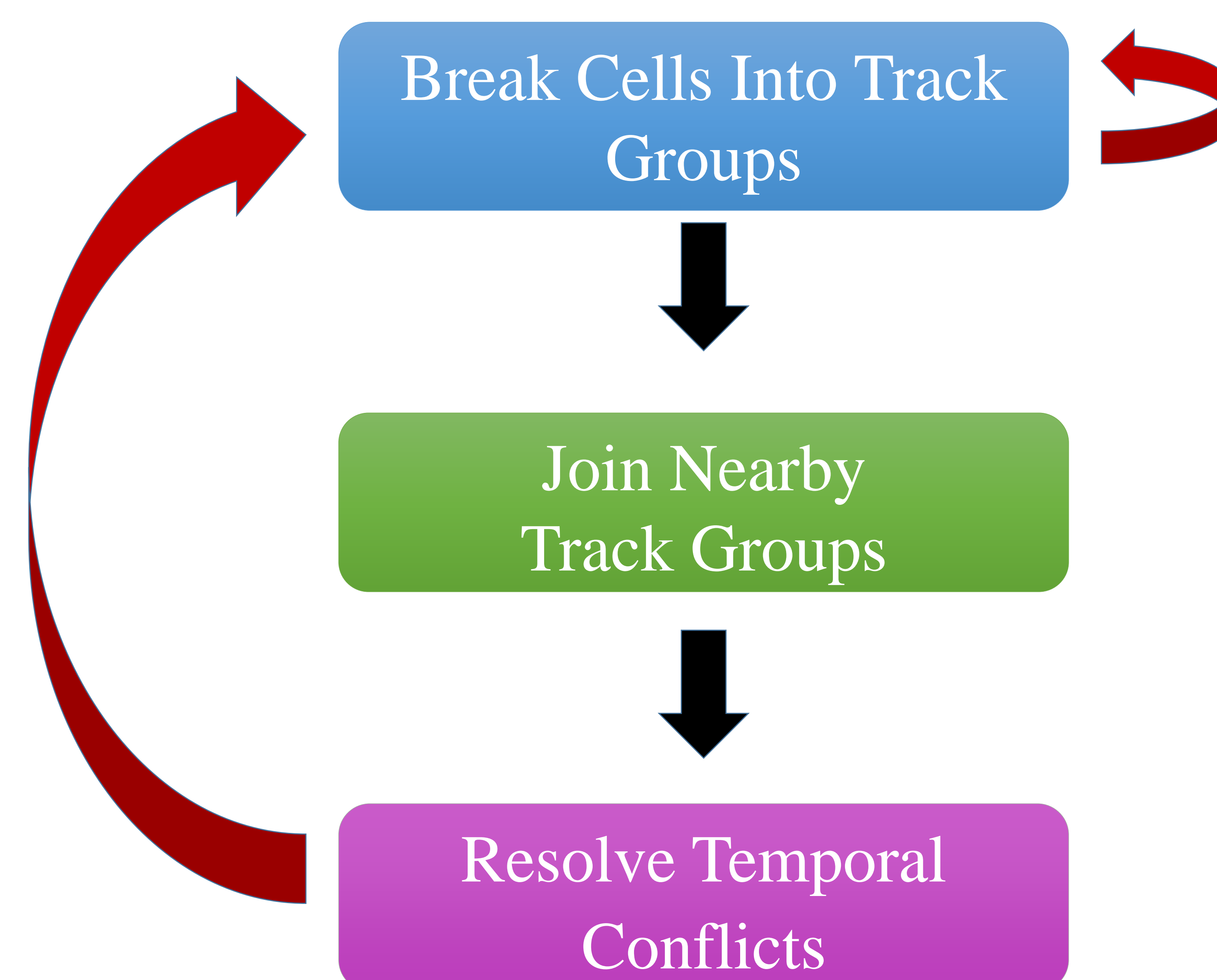
- WDSS-II w2segmotion output
- ProbSevere objects
- Any data that provides geotemporal coordinates

Best Track's expandable design has made it possible to run the package on a variety of datasets and formats that provide geotemporal coordinates.

Application

Best Track has been used to improve upon w2segmotion and ProbSevere tracking algorithms by correcting erroneous breaks and splits in estimated storm paths. This has helped to create a more accurate and continuous representation of storm characteristics, which is expected to have beneficial implications in both research and operational applications.

3-Step Algorithm:



Distribution:



Github

<https://github.com/arkweather/BestTrack/>



Python Package Index

<https://pypi.python.org/pypi/besttrack/>



API:

<https://github.com/arkweather/BestTrack/wiki/>

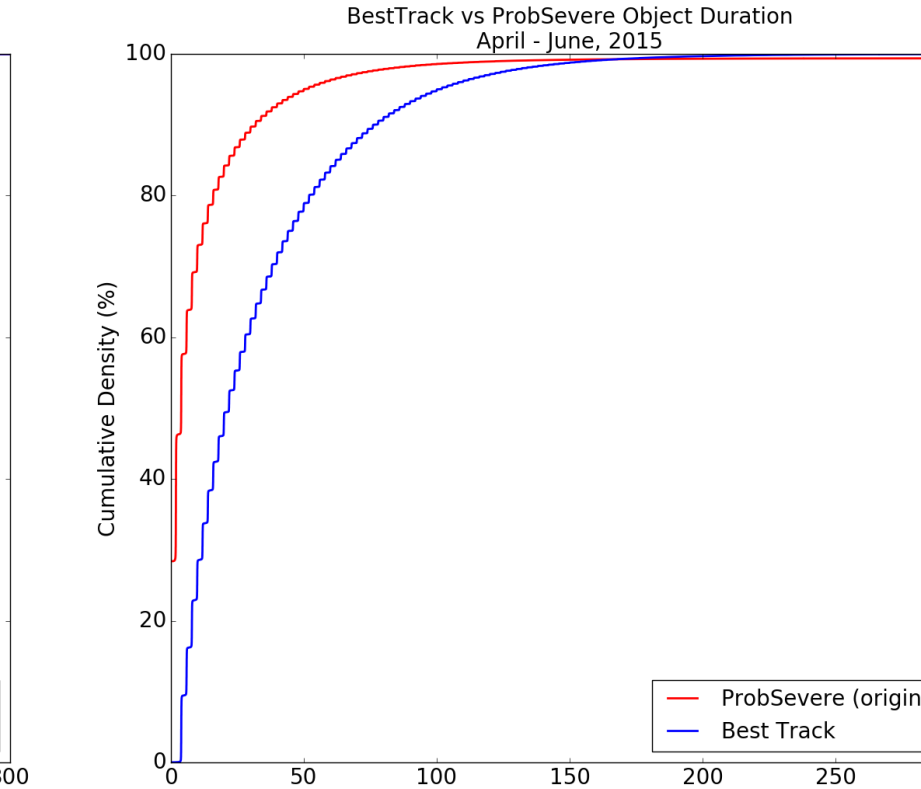
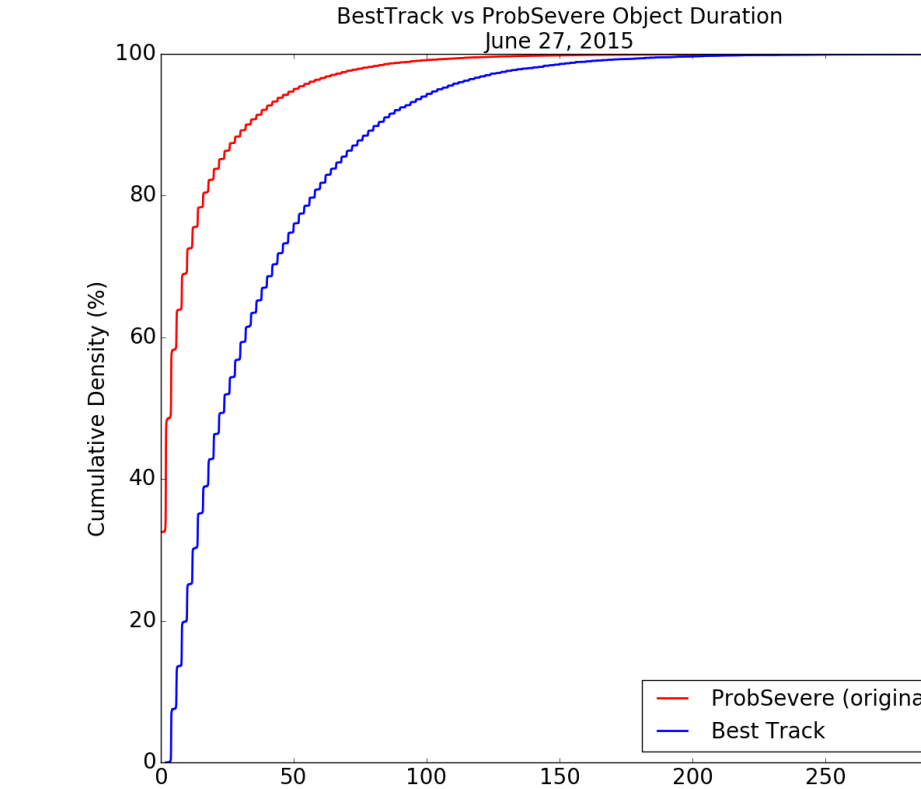
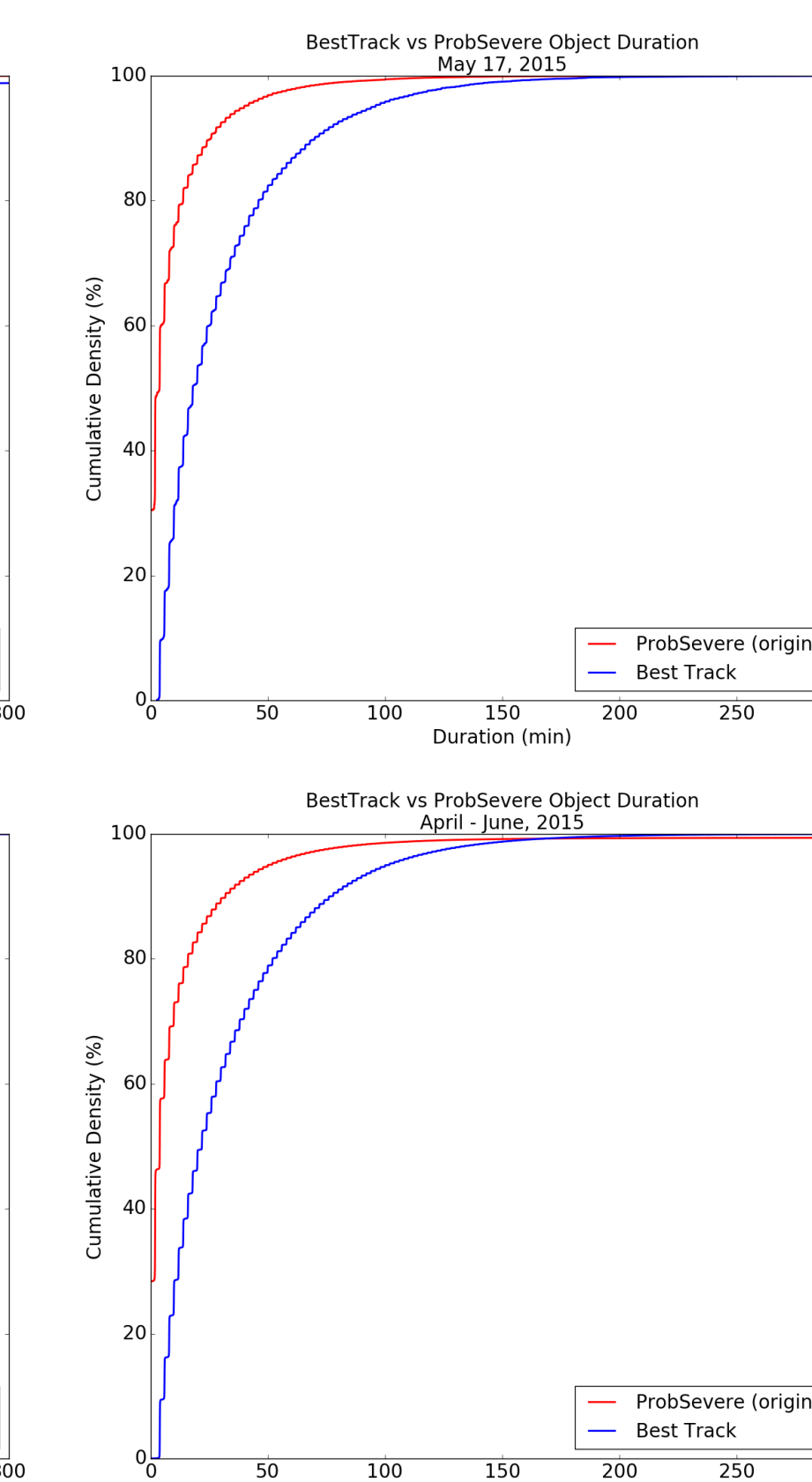
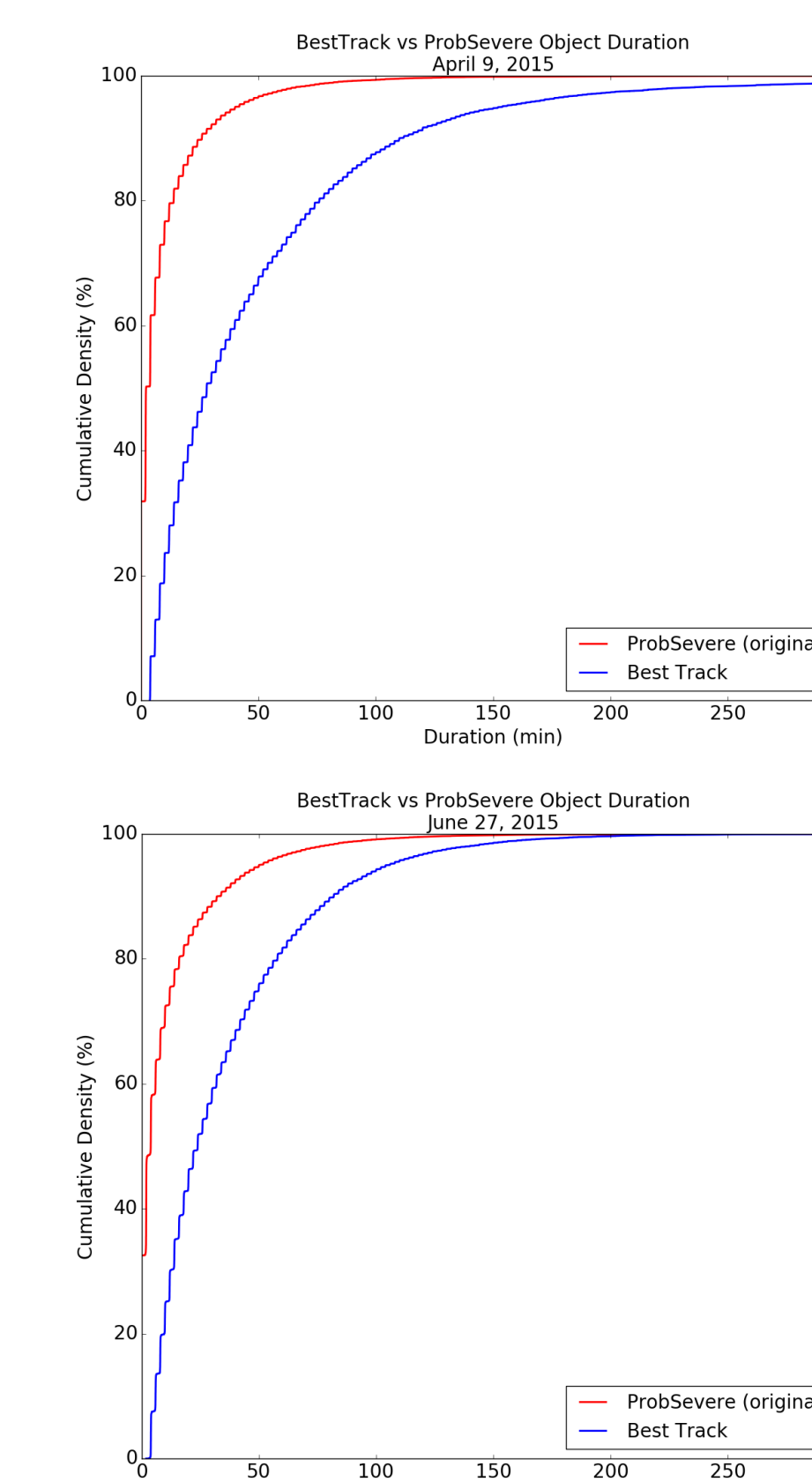
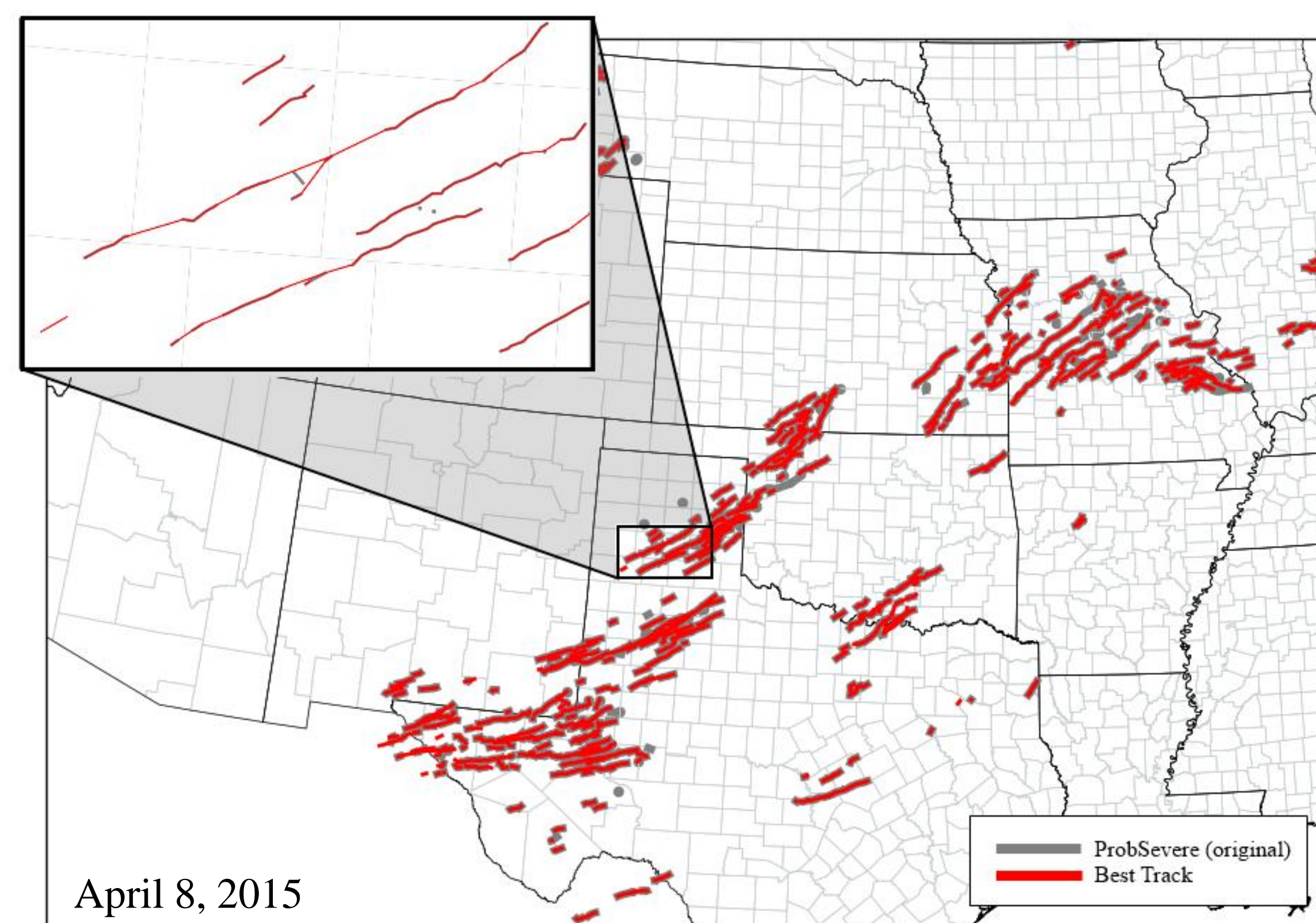
Acknowledgements:

Best Track was developed as part of FACETS with funding provided by the NOAA/OAR Probability of What? grant and by NOAA-University of Oklahoma Cooperative Agreement #NA11OAR4320072.

References:

Lakshmanan, V., B. Herzog, and D. Kingfield, 2015: A Method for Extracting Postevent Storm Tracks. *J. Appl. Meteor. Climatol.*, **54**, 451–462, doi: 10.1175/JAMC-D-14-0132.1.

Best Track vs. ProbSevere Tracking



Left: Comparison of estimated storm tracks produced by ProbSevere tracking (grey) and the Best Track algorithm (red).

Right: Cumulative density functions of storm track durations produced by ProbSevere (red) and Best Track (blue).