

Interactive comment on “TempestExtremes v1.0: A Framework for Scale-Insensitive Pointwise Feature Tracking on Unstructured Grids” by Paul A. Ullrich and Colin M. Zarzycki

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We would like to thank the referee greatly for their positive comments.

To quickly respond to the question for the authors, TempestExtremes does include an experimental capacity to track 2D contours (in our nomenclature we refer to these features as "blobs"). We are currently using this capability to examine atmospheric blocking regions and atmospheric rivers, but agree that it would be advantageous to apply this capability to other features. We are very much open to collaborations that would allow us to further expand the capabilities of the software framework, or see it applied to other problems of interest.

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To shed some light on the current capabilities, the StitchBlobs executable takes as input a single NetCDF file (or list of NetCDF files) with an integer variable containing 0s where no feature is present and 1s where a feature is present. It then executes a two step procedure: (1) at each time step uniquely tag distinct blobs of 1s using "flood fill" (also commonly referred to as connected component labelling) and (2) stitch blobs together in time that have any overlap between subsequent timesteps. This procedure must work both forward and backward in time to ensure that, for instance, merging or separating blobs are tagged with the same identifier.

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