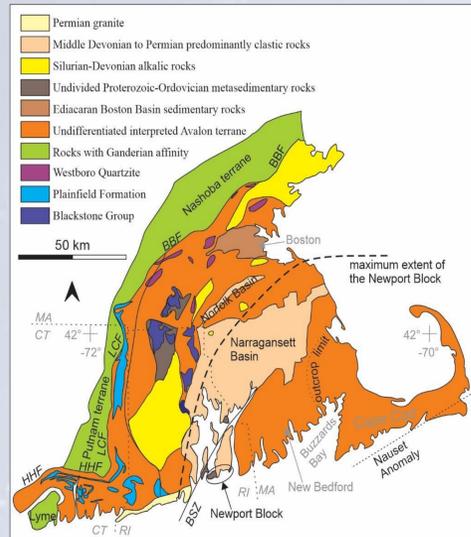
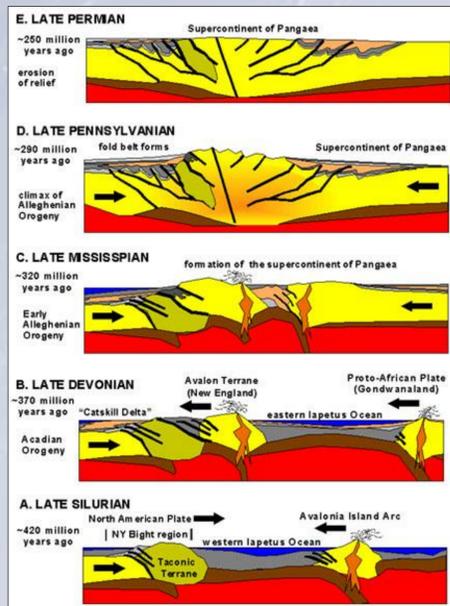


Overview of Purpose

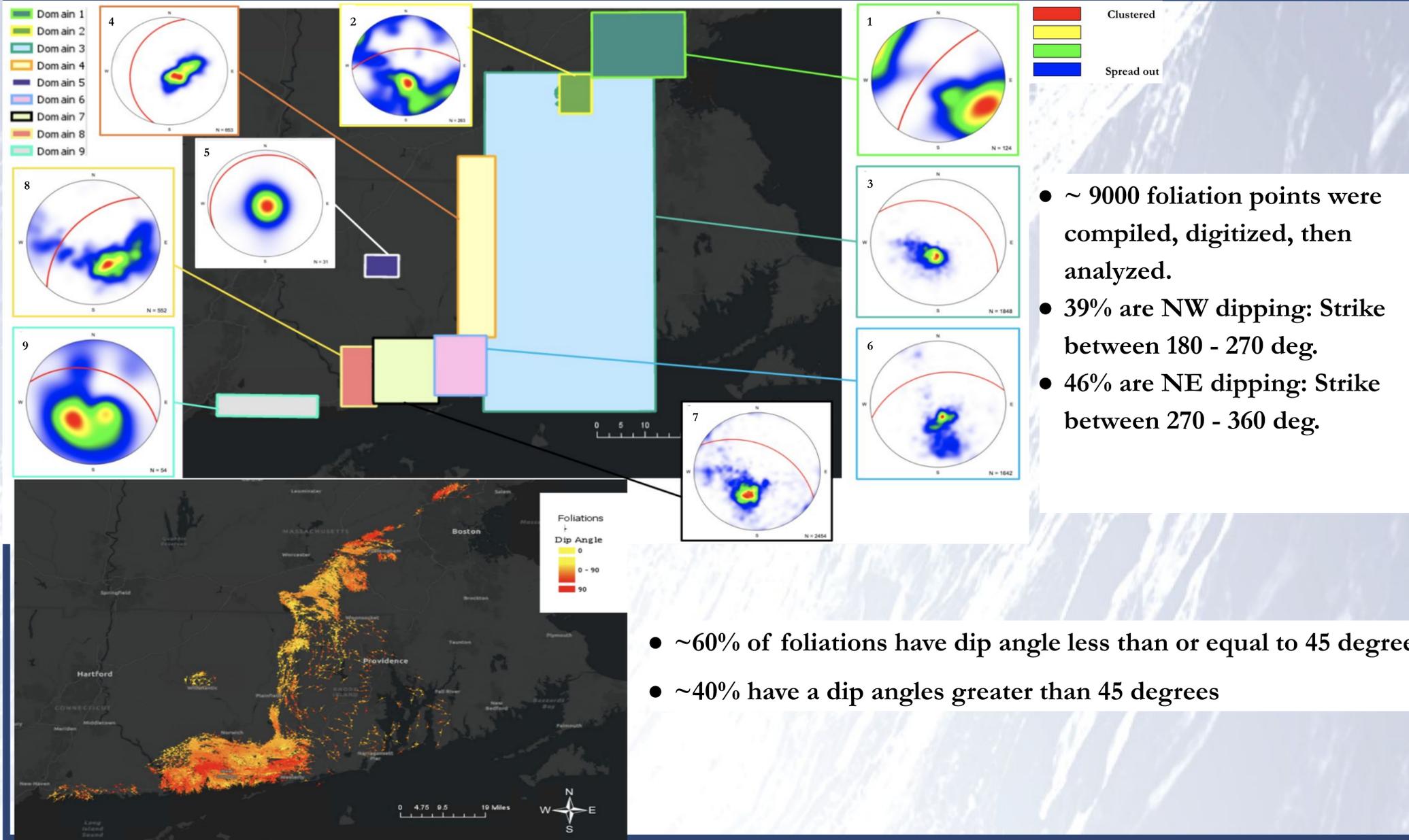
Purpose: to understand the relative movement between (micro)continents during the Alleghanian orogeny. Of particular interest is deciphering how Pangaea formed, and how NW Africa came to collide with the Avalon terrane.

Background

- The Avalon terrane of this region is composed of crustal blocks of different origins whose metamorphism is due to the Alleghanian Orogeny
- The orogeny occurred from Mississippian to Permian resulting in a collision creating Pangaea



Results



- ~ 9000 foliation points were compiled, digitized, then analyzed.
- 39% are NW dipping: Strike between 180 - 270 deg.
- 46% are NE dipping: Strike between 270 - 360 deg.

- ~60% of foliations have dip angle less than or equal to 45 degrees
- ~40% have a dip angles greater than 45 degrees

Discussion/Conclusion

- The dominant dip direction of this portion of the Avalon Terrane is NE
- Based on foliation orientations on the state maps and preliminary work by the 2019 project we expected there to be largely NE-striking (NW-dipping) foliations
- Two northernmost domains display NW dip directions. These domains are located above the Alleghanian Front. The Alleghanian Orogeny may have overprinted and deformed previous metamorphism caused by the Acadian Orogeny, altering dip direction below the Front.
- Areas that display opposite dip directions (example: domains 3 and 4) may reflect unknown faults in the area that could be studied at a later date.

Acknowledgments

Our research area is on the unceded lands of the Pawtucket, Pokanoket, Narragansett, Mohegan, and Quinnipiac peoples. I ask you to join me in acknowledging these communities, their elders both past and present, as well as future generations. We also acknowledge that this region was built upon exclusions and erasures of many Indigenous peoples. This acknowledgement demonstrates a commitment to beginning the process of working to dismantle the ongoing legacies of settler colonialism.

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Methods

- GIS files and/or pdfs of quadrangle maps were compiled
- Georeferencing and digitization of foliation points was conducted via GMDE and ArcGIS Pro
- 9 Structural domains were created using Thiessen Polygon tool in ArcGIS
- Maps indicating direction of strike and dip, and dip angle were created on ArcGIS Pro
- Tables of foliation data from the 9 domains were converted to Excel Sheets to be uploaded onto Orient Stereographic Projection Software
- In Orient we made stereonet of 9 domains to visualize dip orientation.