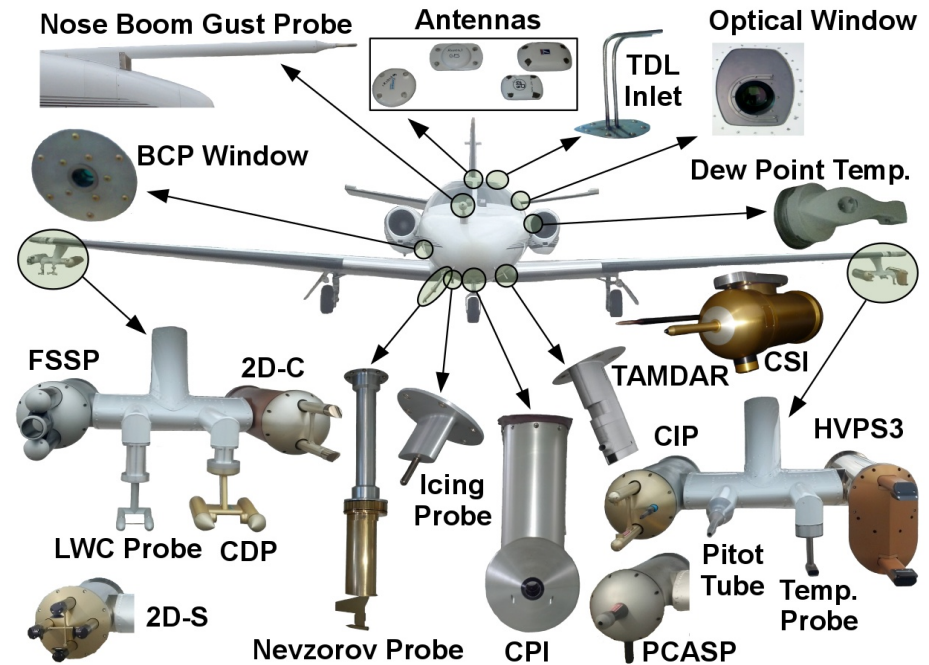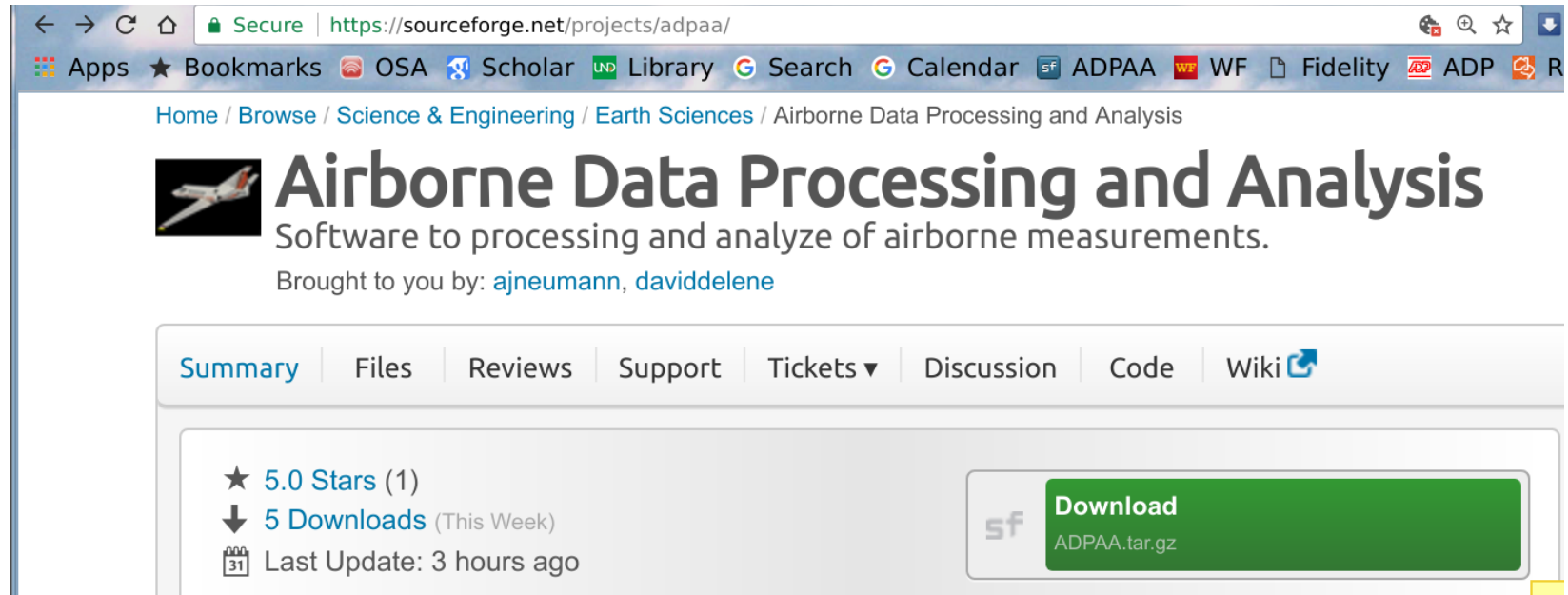# BAMS Paper Update

David Delene

University of North Dakota

Delene, D. J., Andrea Neumann, Alexei Korolev, Matt Freer, Olivier Henry, Jonathan Crosie, Stephanie Gagne, Landan MacDonald, Aaron Bansemer, Andrew Heymsfield, Colin Gurganus, Wei Wu, Greg McFarquhar, *Towards Community Software Development to Process and Analyze Cloud Physics In-situ Aircraft Data*, Bulletin of the American Meteorological Society, in review, 2017.

Capsule Summary

Complementary software packages exist for handling aircraft data; however, sustainability requires a community approach where developers encourage new users, users create documentation, and package administrators ensure good engineering practices.

System Design Components

University Classes

Community Software Distribution

User Short Courses

Package Documentation

Distribution Tutorials

Testing Data Sets

Editorial Team

Support Packages

ADPAA

EGADS

SODA

UIOPS

SAMAC

ADTAE

Code Documentation, Testing Data, and Tutorials

Code Team

Code Team

Code Team

Code Team

Code Team
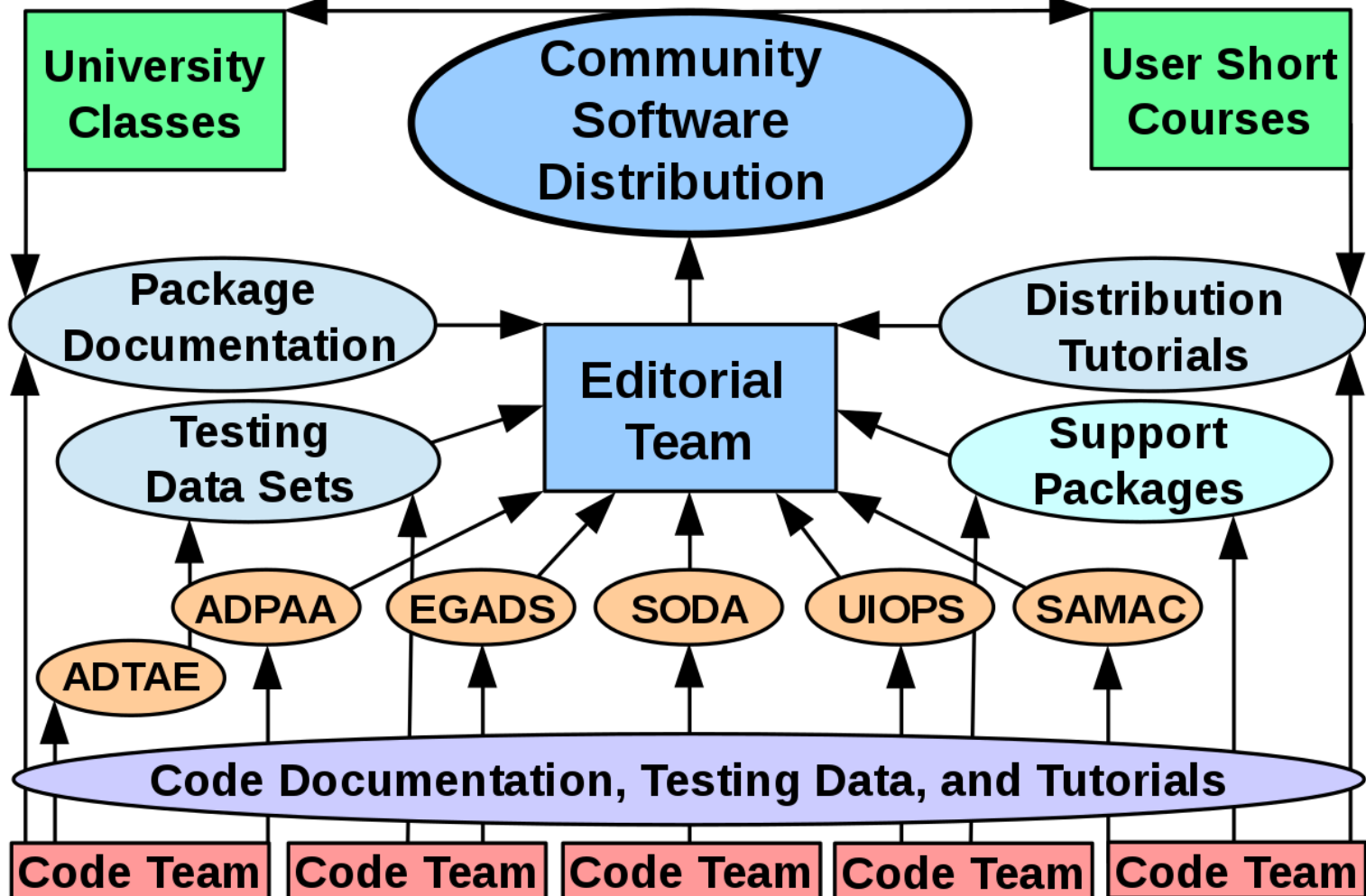
Available Support Tools

Install Scripts → Community Software Distribution

Demonstrations → Community Software Distribution

Community Software Distribution → Workstations

Community Software Distribution → Servers

Community Software Distribution → Virtual Machines

Code Standards → Web Site → Community Software Distribution

Installation Documentation → Wiki Site → Community Software Distribution

Acceptable Copyrights → Open Repository → Editorial Team

Support Packages → Editorial Team

Testing Data Sets → Editorial Team

Editorial Team → Networking

Networking → Email Lists

Networking → Feature Request

Networking → Discussion Forms

Code Team Workshops

Tutorials → Editorial Team

Software Packages → Editorial Team

Community Learning Environment
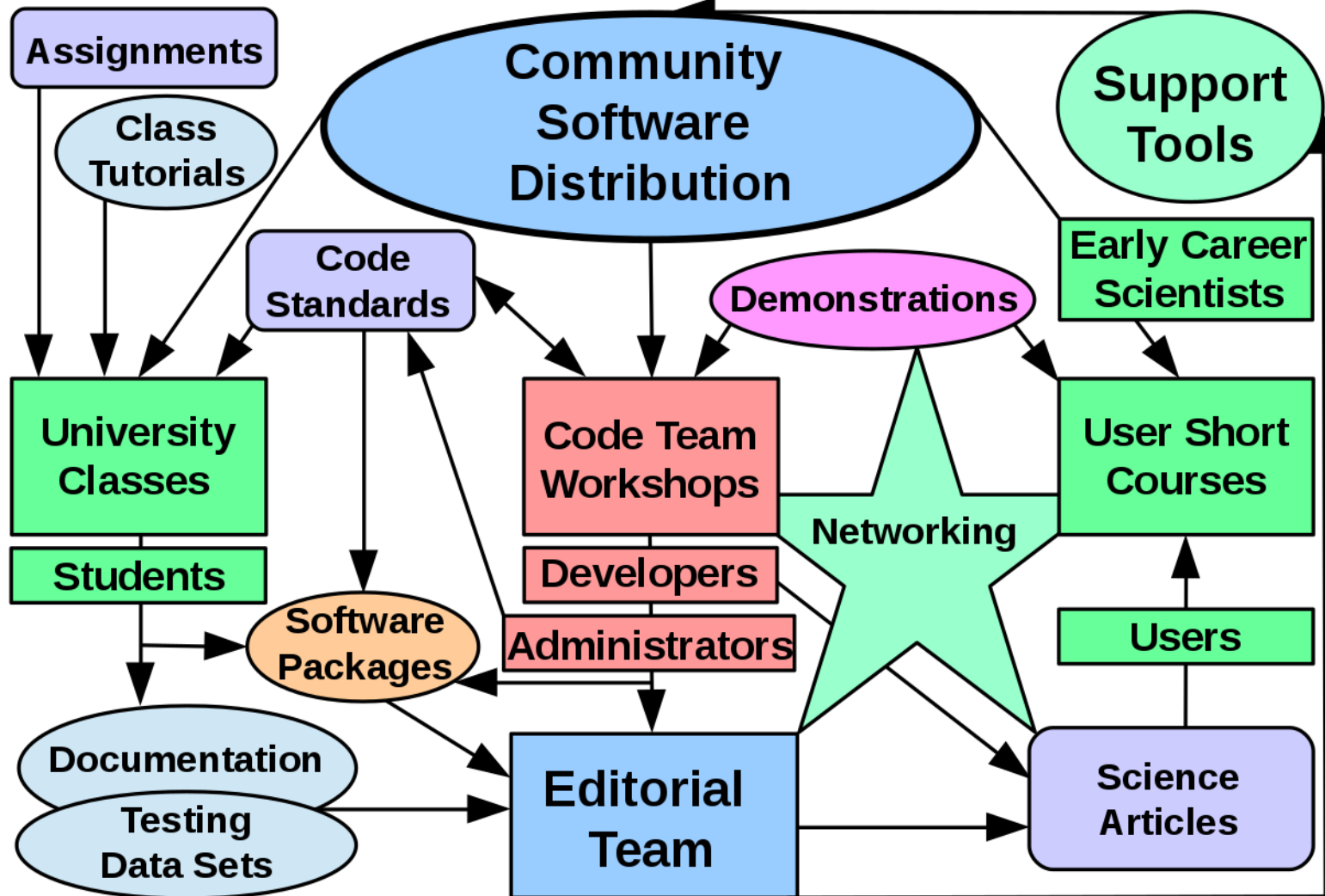
Towards Community Software Development

Software packages for handling cloud physics, in-situ aircraft data are available; however, scientific software development is inefficient and there is path towards a more efficient system of community-wide development that includes best practices.

- Community package developers typically have no specific support funding; therefore, users should expect only limited help with their applications.
- New users often find package documentation insufficient so they should openly document any assistance received to reduce the future burden on developers.
- Package administrators should ensure good software engineering practices, provide developer feedback, and provide available options for users to obtain assistance.
- Companies should engage with the developer community and provide strong intellectual leadership; however, they cannot anticipate all instrument usage cases.
- Project managers should fund community software development as part of larger research projects, support scientific grants that add important new components, and enable researchers to support community software.

Project managers and researchers across the atmospheric sciences should unify efforts to develop community software in order to avoid unproductive development of redundant software and increase efficiency of their research by promoting community software development.