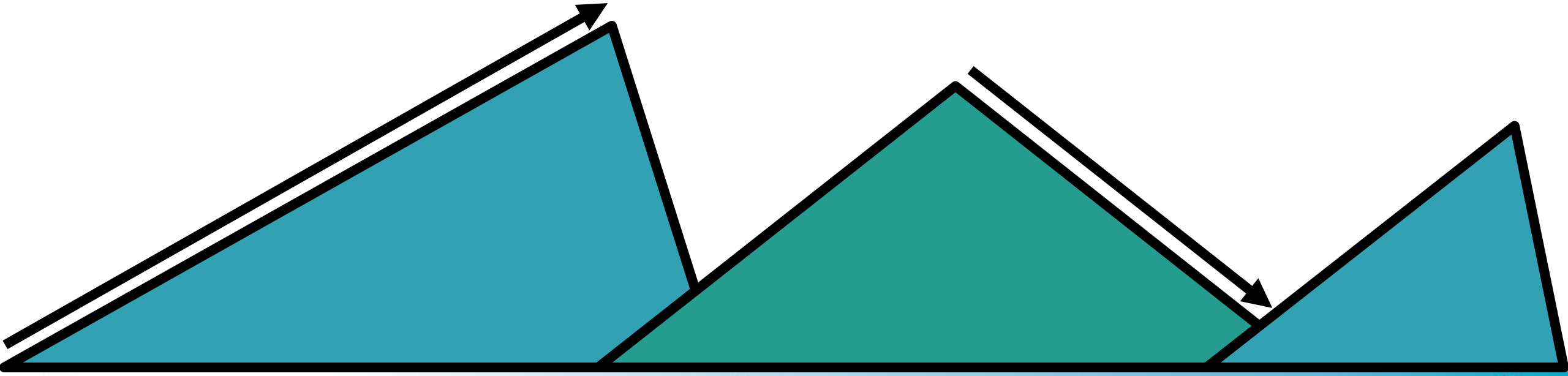
Learn, Design, Develop: My Summer with Unidata AWIPS

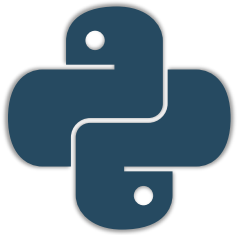
Rhoen Fiutak

27 July 2022



Background

Learn AWIPS CAVE is an eLearning course



Python-AWIPS Jupyter notebook examples on data plotting

AWIPS Tips blog posts on updates and new functionality

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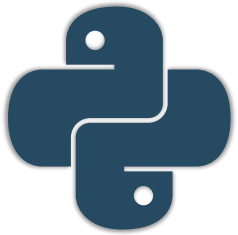

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Motivation

To transform the geosciences community, research, and education by providing innovative data services and tools
- Unidata Mission

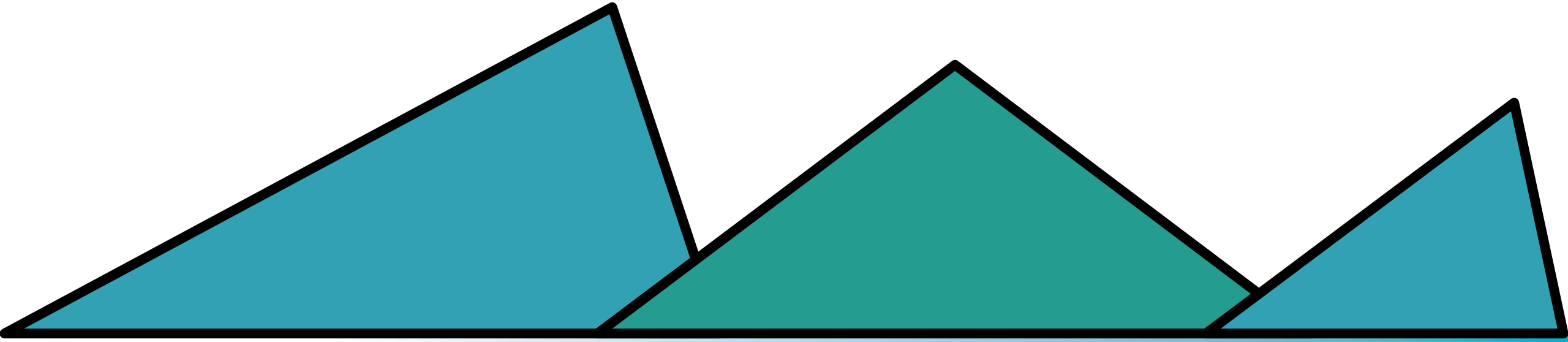
- Educational resources for these visualization tools can **lower barriers** to using software tools
- Targeted tips and tutorials **increase access to and awareness** of informative ways of using data
- Serving our **University community** with better instructing on CAVE and Python-AWIPS

Goals for the summer

Efficiency in Python-AWIPS example notebooks process from task to website documentation

Exposure to professional writing and video creation

Understanding and application of instructional design principles

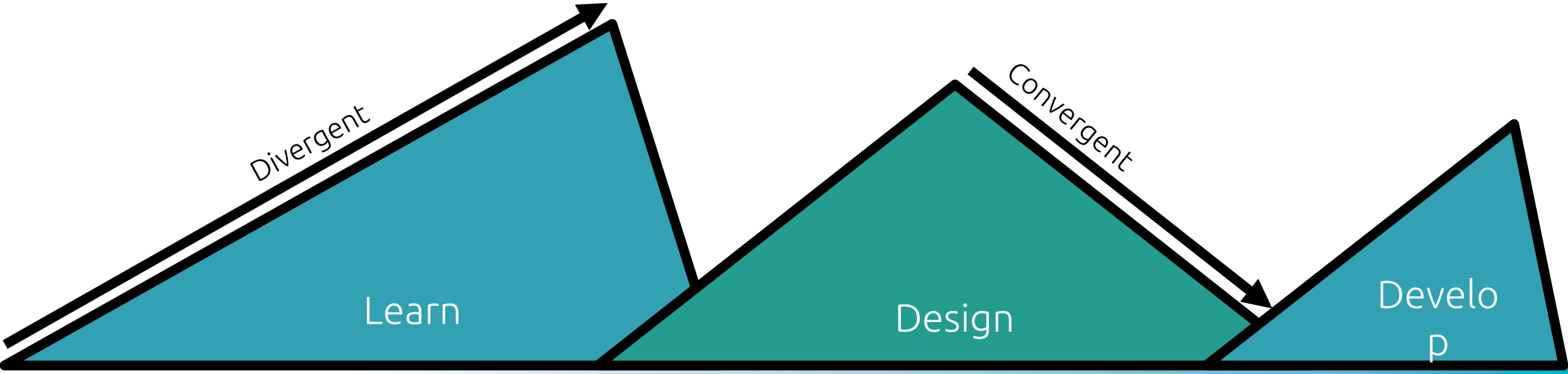


Design the Right Thing

- Community Outreach
- Understand our Learners
- Research and Explore pre-existing material

Design Things Right

- Scaffolding
- Learning Objectives
- Storyboard
- Educational Technology
- Communication with SMEs



Learning Curve

Efficiency in Python-AWIPS example notebooks process from task to website documentation

Task: Translate *METAR Station Plot with MetPy* Jupyter notebook example

→ **Foundational Skills:**

- Python
- Conda
- Jupyter Notebooks
- Meteorological data
- Git and Github

PROJECT PYTHIA

jupyter

rfiutak / python-awips

forked from Unidata/python-awips

Contributions

Efficiency in Python-AWIPS example notebooks process from task to website documentation

Task: Translate *METAR Station Plot with MetPy* Jupyter notebook example

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Contributions:

- See Also section
- Testing and feedback

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unidata

UCAR

NSF

Which format is more accessible as an educational resource for a new user?

NEXRAD Level3 Radar

Notebook .. code:: ipython3

This example plots NEXRAD 3 algorithm, precipitation, and derived products (not base data).

```
import warnings
from awips.dataaccess import DataAccessLayer
import matplotlib.pyplot as plt
import cartopy.crs as ccrs
import numpy as np
from cartopy.mpl.gridliner import LONGITUDE_FORMATTER, LATITUDE_FORMATTER
%matplotlib inline

DataAccessLayer.changeEDEXHost("edex-cloud.unidata.ucar.edu")
request = DataAccessLayer.newDataRequest("radar")
available_locs = DataAccessLayer.getAvailableLocationNames(request)
available_locs.sort()
list(available_locs)
request.setLocationNames("kmhx")
availableParms = DataAccessLayer.getAvailableParameters(request)
availableParms.sort()
#List(availableParms)

productIDs = DataAccessLayer.getRadarProductIDs(availableParms)
productNames = DataAccessLayer.getRadarProductNames(availableParms)
print(productIDs)
print(productNames)
```

METAR Station Plot with MetPy

Notebook Python-AWIPS Tutorial Notebook

Objectives

- Use python-awips to connect to an edex server
- Define and filter data request for METAR surface obs
- Extract necessary data and reformat it for plotting
- Stylize and plot METAR station data using Cartopy, Matplotlib, and MetPy

Table of Contents

Learning Curve

Exposure to professional writing and video creation

Task: Create a video for the blog post on using drawing properties for WWA display in CAVE

Foundational Skills:

- Camtasia
- Exposure to html and roller
- AWIPS Tips blog posts
- Learn AWIPS CAVE course

Contributions

Exposure to professional writing and video creation

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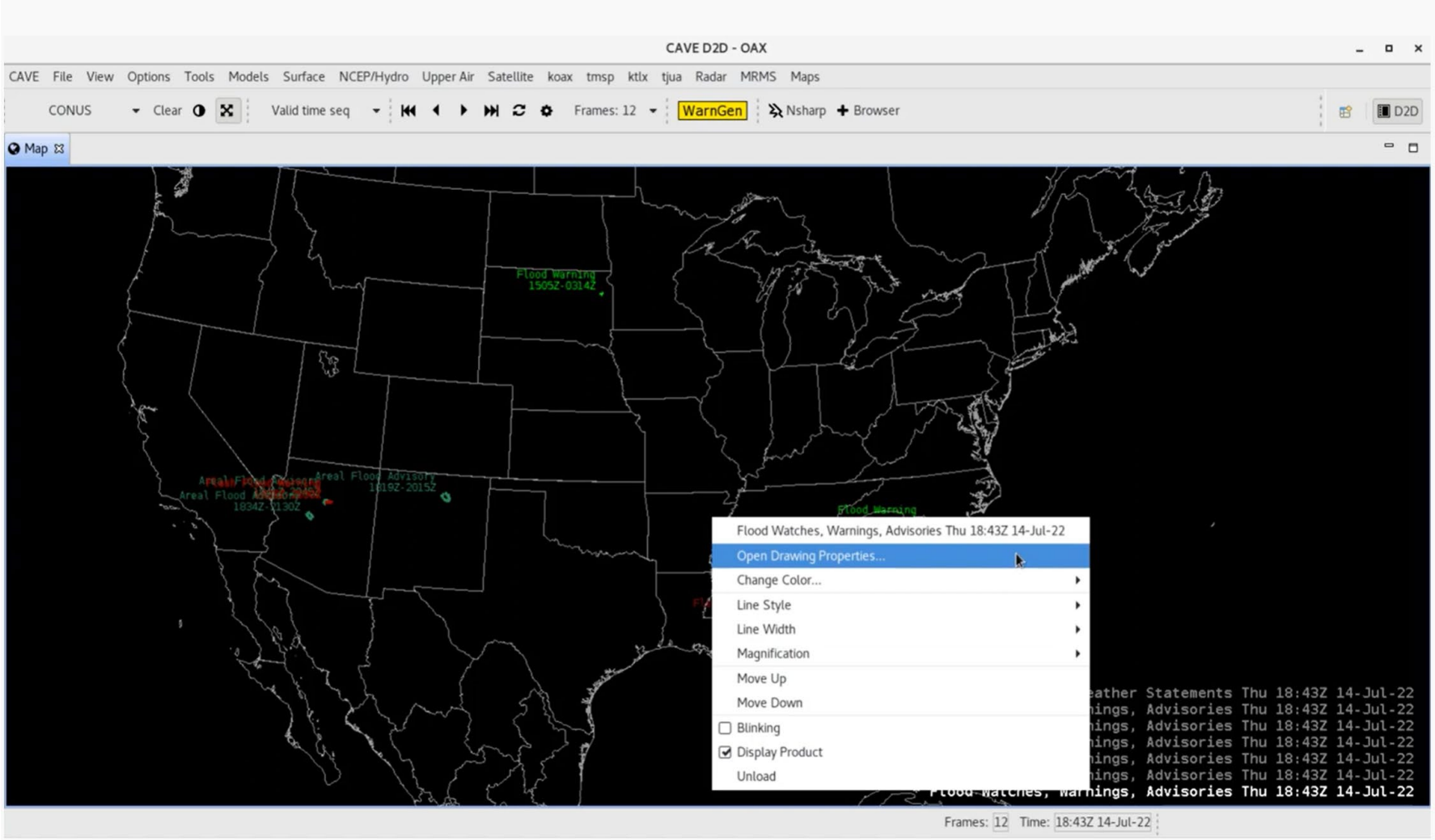
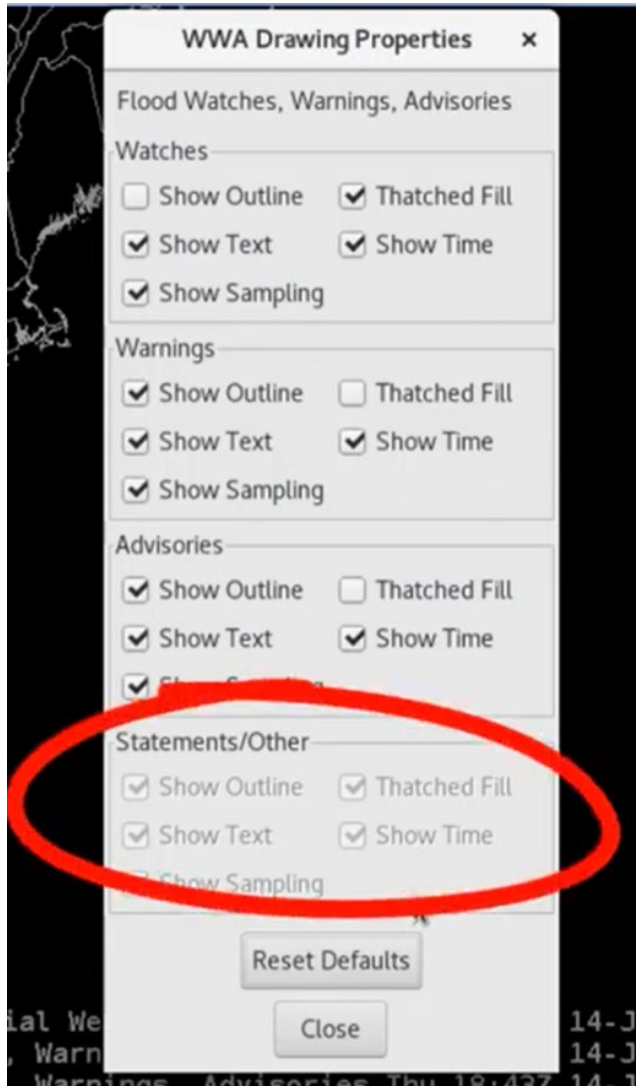
Contributions:

- Testing in CAVE
- Feedback that led to development of added functionality in latest release
- Camtasia video





Using Drawing Properties for Watches, Warnings, and Advisories Display in CAVE

Youtube link

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Learning Curve

Understanding and application of instructional design principles

Task: Create an eLearning module for Python-AWIPS

Foundational Skills:
- Articulate Rise 360
- Instructional Design Models

Community Outreach:
- Evaluation Meeting with Texas A&M Professors
- Email Interviews with University Professors and Professional Users

Contributions

Understanding and application of instructional design principles

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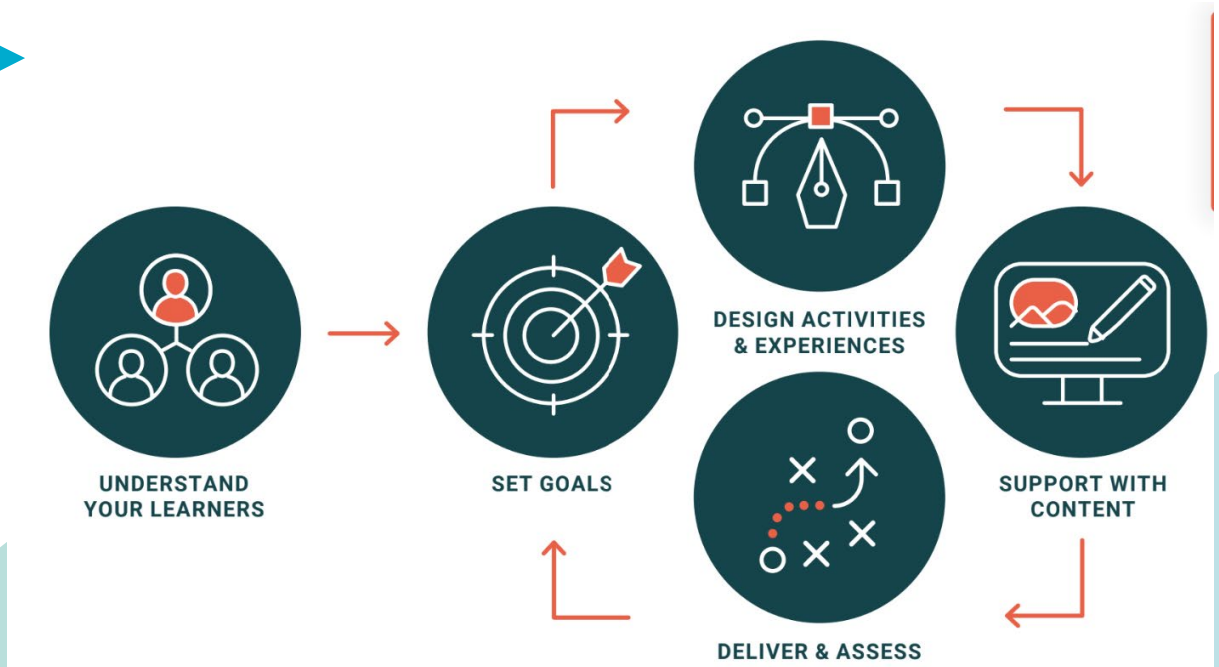
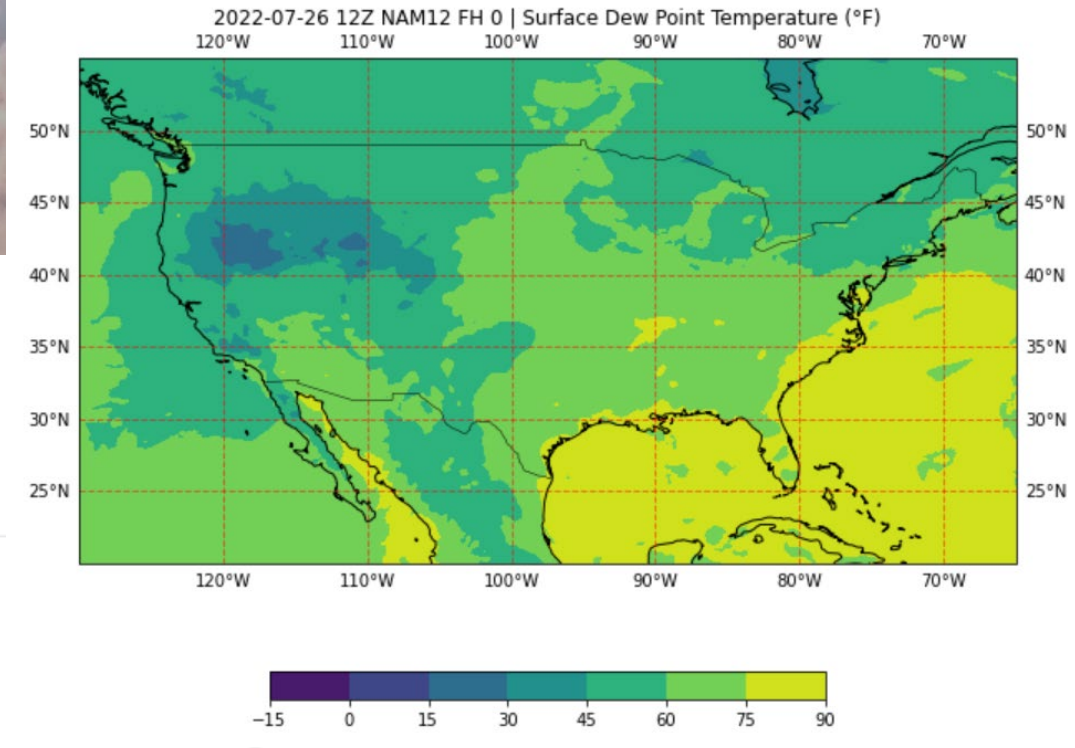


RF Rhoen Fiutak

Learn Python-AWIPS

START COURSE



CREATE AN INFORMATIVE PLOT WITH AWIPS DATA IN PYTHON [~ MINUTES]

- Investigate available data types
- Make a data request
- Identify functions for manipulating response object
- Plot data

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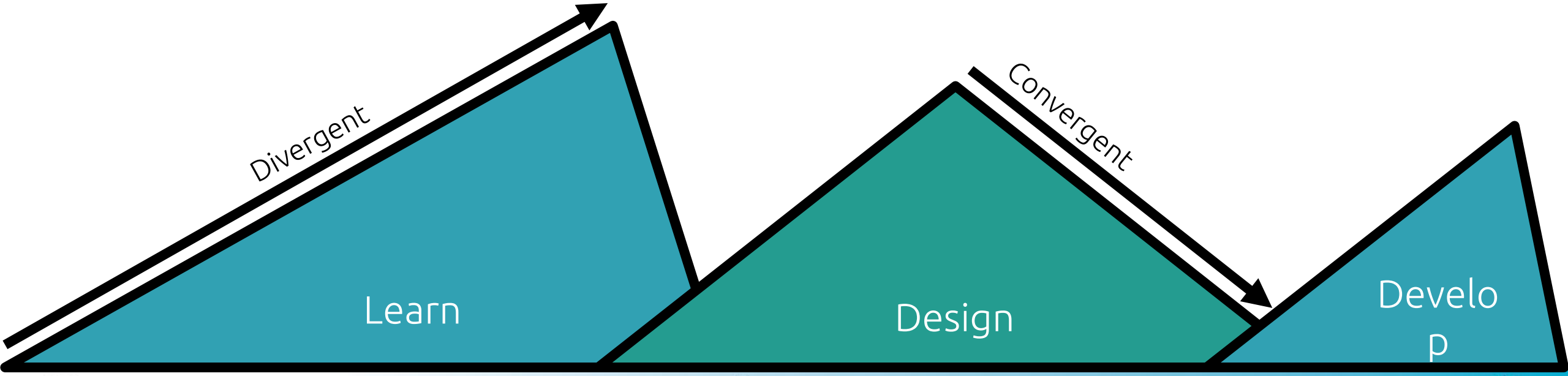

Acknowledgements

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- Unidata and UCAR

Thank you!