Learn, Design, Develop: My Summer with Unidata AWIPS

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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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AWIPS Tips blog posts on updates and new functionality

**Background**

**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
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

forked from Unidata/python-awips
Task: Translate METAR Station Plot with MetPy Jupyter notebook example

Contributions:
- See Also section
- Testing and feedback

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

forked from Unidata/python-awips
Which format is more accessible as an educational resource for a new user?

NEXRAD Level3 Radar

```
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

_DataAccessLayer_.changeDEXHost("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

**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**

1. Imports
2. Function: get_cloud_cover()
3. Initial Setup
   3.1 Initial EDEX Connection
   3.2 Setting Connection Location Names
4. Filter by Time
5. Use the Data!
   5.1 Get the Data!
   5.2 Extract all Parameters
   5.3 Populate the Data Dictionary
6. Plot the Data!
7. See Also
   7.1 Related Notebooks
   7.2 Additional Documentation
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
Exposure to professional writing and video creation

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

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
Understanding and application of instructional design principles

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

Task: Create an eLearning module for Python-AWIPS
Understanding and application of instructional design principles

Task: Create an eLearning module for Python-AWIPS

Foundational Skills:
• Articulate Rise 360
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Learn Python-AWIPS

CREATE AN INFORMATIVE PLOT WITH AWIPS DATA IN PYTHON [< 1 MINUTES]

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