

## J4.6 BUILDING A FRAMEWORK TO FACILITATE INTERACTIVE AND DYNAMIC EDUCATIONAL CASE STUDY MODULES

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### 1. INTRODUCTION

Creating interactive datasets has been a feature of Unidata's Integrated Data Viewer (IDV) since its inception. A problem, that continued to be an obstacle to sharing these datasets, was the need for persistence. Many datasets move or get deleted as time progresses making it difficult or impossible to recreate the desired view for analysis or education. This obstacle is addressed within this new framework for creating, publishing, sharing, and adding content to research and educational material.

Unidata is collaborating with the COMET program, also at the University Corporation for Atmospheric Research (UCAR) Office of Programs, to deliver the high quality educational learning modules COMET creates concurrently with the scientific datasets visualized within the Unidata IDV. This gives educators the ability to include expert advice on topics that are related to the vast archive of COMET learning modules. The end user will also be capable of embellishing the case study with other datasets and learning objects.

### 2. BACKGROUND

The Unidata IDV has the capability to save the state of the current visualization. This saved state is what we call an IDV "bundle". Bundles save the view perspective and parameters displayed to represent the data as the creator of the bundles desires. Once the bundle is loaded into the IDV, the data can be changed, manipulated and or added to. Additional Unidata and Unidata Community technologies are used in this end to end process. The Unidata Local Data Manager (LDM) is applied to ingest, decode and file real time atmospheric data. A spectrum of server technologies is used to deliver, subset and transform the data for the IDV and other clients. These server technologies include the Thematic Realtime Environmental Distributed Data Services (THREDDS), Abstract Data Distribution Environment (ADDE), and Open-source Project for a Network Data Access Protocol (OPeNDAP). THREDDS also generates catalogs for the user to browse and select delivery options depending upon their client of choice or desired format.

The concept of data persistence has been addressed by developing a THREDDS Data Repository (TDR). The TDR will allow the end users to access datasets and IDV bundles already cataloged (and currently hosted at UCAR/Unidata), and allow the user to add to the existing datasets or casestudy with their own datasets, bundles or other ancillary data. The original work done includes datasets and analysis of the 2005 Atlantic hurricane season, Hurricane Katrina, and Hurricane Wilma. Content for the three (3) casestudies was developed by the UNC-Charlotte team and the COMET Program, and the framework built to enable these transactions was developed at Unidata. The TDR gives educators and researchers a vehicle to upload and share data and curriculum. The TDR is data agnostic so uploading images, presentations, links to news articles, are all possible.

### 3. FUTURE WORK

Plans are to tie the TDR to a database to allow for search and query capabilities and enable smoother and quicker writing of updated THREDDS catalogs. This service will then be opened to the public in the hope that users will create and contribute unique and multidisciplinary content to provide a rich and dynamic casestudy or educational module. This project is a natural extension of a past collaboration between COMET and Unidata to create static casestudies for the National Weather Service and universities.

### ACKNOWLEDGMENTS

This work was funded by the UCAR Office of Programs Directors Office STORM Funds. These funds financed the work done by UNC-Charlotte and a third party consultant to COMET.

### REFERENCES

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Unidata:

<http://www.unidata.ucar.edu/>

Integrated Data Viewer:

<http://www.unidata.ucar.edu/software/idv/>

THREDDS:

<http://www.unidata.ucar.edu/projects/THREDDS/>

Current catalog:

<http://lead3.unidata.ucar.edu:8080/thredds/tdr/ngcs/catalog.html>

ADDE:

<http://www.ssec.wisc.edu/mcidas/software/openadde/>

OPeNDAP:

<http://www.opendap.org/>