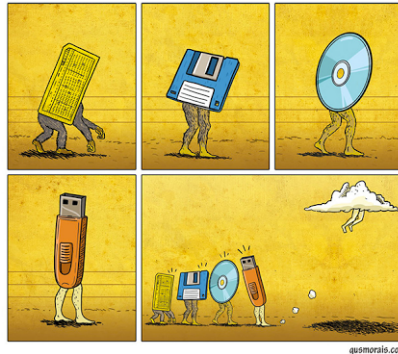


AMS Short Course on Interacting with Radar Data in The Cloud



08:30 - 09:00 Arrival, introductions and setting up of environments:

Participants will arrive at Amazon by 8:30 and will be shown to the tutorial room

Wifi will be set up and course materials distributed

09:00 - 10:00 How to set up an instance in the Amazon Cloud:

An introduction to the concepts of virtualization and Elastic Cloud Compute (EC2) instances

Installation on the EC2 instance of software required for the tutorial

10:00 - 11:00 An introduction and primer on Python and Scientific Python:

Python is a general purpose, high-level, interpreted programming language that is widely used for scientific computing. During this session Python will briefly be introduced as a programming language for working with scientific data. Much of the time will be spent introducing and providing background on some of the key libraries used in the scientific Python ecosystem including NumPy, SciPy, and matplotlib.

11:00 - 12:00 An introduction to Boto, Unidata tools and Py-ART:

During this section additional Python tools, Boto, Siphon, THREDDS, and Py-ART, are introduced. These tools are needed or useful for accessing the NEXRAD Level 2 archive on Amazon Simple Storage Server (S3). This section will walk through using Boto, Amazon's Python library for talking to AWS, to access files on S3. Unidata's THREDDS server, and its Siphon Python client, will be introduced as a way for accessing the radar data using OPeNDAP and for querying available data files. Finally, Py-ART will be discussed as a Pythonic solution for analyzing and displaying radar data.

12:00 - 13:30 Lunch:

On your own.

13:30 - 16:00 Tying it together, using Boto, Py-ART and Siphon to fetch and plot radar data and observations in the cloud:

Group activities where we will use code discussed from earlier to build an EC2 instance and python file that can fetch radar and other observations and produce a visualization for any site and time in the archive.

16:00 - 17:00 Getting it to scale, how to use AWS to set up many processes:

Radar data processing, in general tends to be very pleasantly parallel. This section will discuss how you can use instances and Amazon's scheduling tools to map many time steps or many sites into a cloud of processes.

17:00 - 17:30 Questions answers and feedback:

A chance to ask the tutors questions, present your own use cases and find out what is next.

Arrival, introductions and setting up of environments

Scott Collis, Jonathan Helmus and Mark Korver

Getting hooked into the wifi, testing connections, dissemination of course materials.

How to set up an instance in the Amazon Cloud

Mark Korver

An introduction to how to set up an EC2 instance and start it running. How to log into it via SSH and how to run code and get results.

An introduction and primer on Python and Scientific Python

Jonathan Helmus and Ryan May

Python is a general purpose, high-level, interpreted programming language that is widely used for scientific computing. During this session Python will briefly be introduced as a programming language for working with scientific data. Much of the time will be spent introducing and providing background on some of the key libraries used in the scientific Python ecosystem including NumPy, SciPy, and matplotlib.

An introduction to Boto, Unidata tools and Py-ART

Scott Collis and Ryan May

During this section additional Python tools, Boto, Siphon, THREDDS, and Py-ART, are introduced. These tools are needed or useful for accessing the NEXRAD Level 2 archive on Amazon Simple Storage Server (S3). This section will walk through using Boto, Amazon's Python library for talking to AWS, to access files on S3. Unidata's THREDDS server, and its Siphon Python client, will be introduced as a way for accessing the radar data using OPeNDAP and for querying available data files. Finally, Py-ART will be discussed as a Pythonic solution for analyzing and displaying radar data.

Lunch

Details and suggestions will go here closer to the workshop date.

Tying it together, using Boto, Py-ART and Siphon to fetch and plot radar data and observations in the cloud

All Tutors

Group project to build and run some code to create a visualization for one of a number of specific historical cases. Pulling radar data from S3, using Siphon to fetch observational data and Matplotlib to plot data overlay. This is the hands on component where students will be building code. Students will be provided with a python text file with missing blocks and using the knowledge gained during the course and with the guidance of the tutors will create a nice plot.

Getting it to scale, how to use AWS to set up many processes

Mark Korver and Scott Collis

Radar data processing, in general tends to be very pleasantly parallel. This section will discuss how you can use instances and Amazon's scheduling tools to map many time steps or many sites into a cloud of processes.

Questions answers and feedback

All Tutors

Feedback and further discussion

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