# CariCOOS DATA Management System (DMS) Plan

*Jorge Capella, Heather Kerkering José B. Rodríguez, Juan Gonzalez*
*Caribbean Coastal Ocean Observing System, University of Puerto Rico at Mayagüez*

## Introduction

The Data Management System (DMS) is one of the major components of CARICOOS, as required by the NOAA IOOS. The fundamental function of the DMS is to aggregate multiple data streams from the sensors and models that comprise CARICOOS as well as from independent data providers into a central archive and provide these data to users via standard services. The CARICOOS DMS is involved with all aspects of data flow including ingestion, QC, archive, discovery, and transport.

## System Components / Data Streams / Specifications



CariCOOS Data Processing Workflow
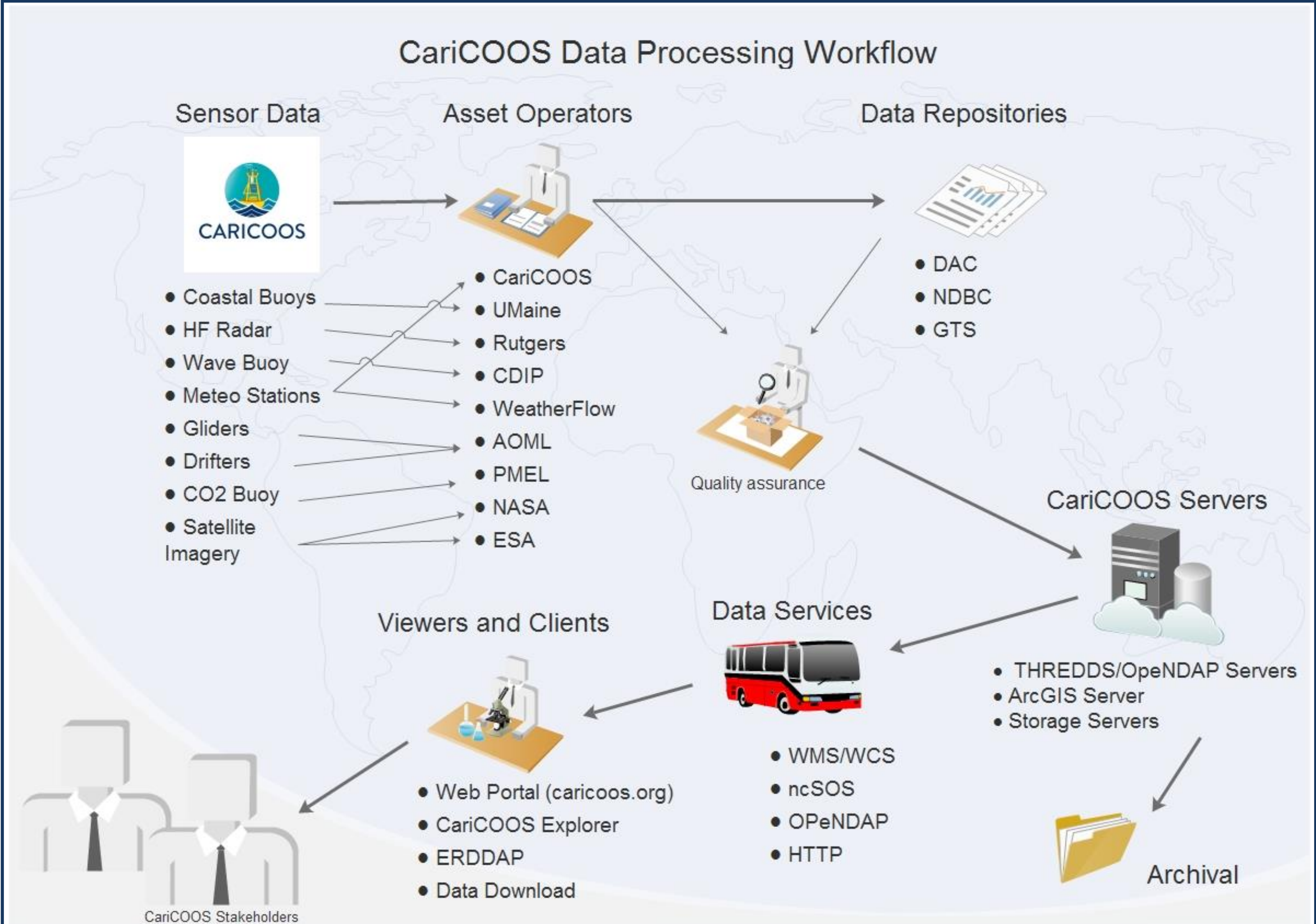
The DMS Plan focuses on the management and delivery of CARICOOS-related data. CARICOOS will implement recommended and standard practices as defined by the IOOS Data Management and Communications (DMAC) committee and more specifically those in the Guide for IOOS Data Providers, version 1.0 (2006). These practices apply to data archive, data discovery, data service (web-based browsing), data transport (binary access to data), metadata, IT security, and data QA/QC.

CARICOOS adheres to the NOAA Data Sharing Procedural Directive. All real-time data collected by CARICOOS are freely available through open services, without delay or restriction. Avenues for accessing the data are available through the CARICOOS website. At present CARICOOS does not maintain any data streams that are restricted, either to specific users or after delays.

Whenever guidance is provided by the U.S. IOOS Program Office on data management protocols, CARICOOS implements and responds as soon as possible. Once the data management lead receives the recommended protocol, he takes the necessary steps to respond in a reasonable and timely manner. Implementation of new services is only limited by personnel time and expertise. CARICOOS often consults outside DMAC expertise from our sister RAs.

## Cloud Initiatives

In addition to maintaining our current web and computational servers redundantly at UPRM and at La Parguera, exploratory steps are being taken to utilize the potential of Cloud computing in implementing the CARICOOS DMS. Cloud servers provide hardware flexibility on demand and reliability as only a virtualization can, resiliency, built-in redundancy, and possibly savings, to our DMAC operations. We are specifically taking the following steps at this moment:

- Setting up a THREDDS/OpenDAP server under Amazon Web Services (AWS)
- Setting up a clone to our webpage database at AWS
- Testing the computational performance of our WRF regional weather model implementations at Sabalcore HPC

Amazon AWS, Microsoft Azure, Google, Sabalcore and many others currently compete in the Cloud market. Sabalcore HPC for example, specializes in environmental and weather modeling.