

# NOAA's Processes for Generating and Sustaining Scientifically Defensible Climate Data Records From Satellites

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NOAA's National Climatic Data Center (NCDC) recently initiated a Climate Data Record (CDR) Program to provide climate products and information from the 30+ years of satellite data that NOAA and others have collected. The Program is currently developing affordable systems and processes that ensure reliable and authoritative products. The Program derived eight non-functional requirements based on these concepts – specifically CDRs must be: accessible, extensible, preserved, reproducible, sustainable, transparent, and continuously improved. This poster depicts these requirements and the associated system framework and processes.

## 1. Extensible

NOAA commits to sustained and uninterrupted product generation, adapting to new satellite streams as necessary

## 2. Scientifically Defensible

Algorithms are competitively selected and independently reviewed to ensure mature, community-accepted approaches

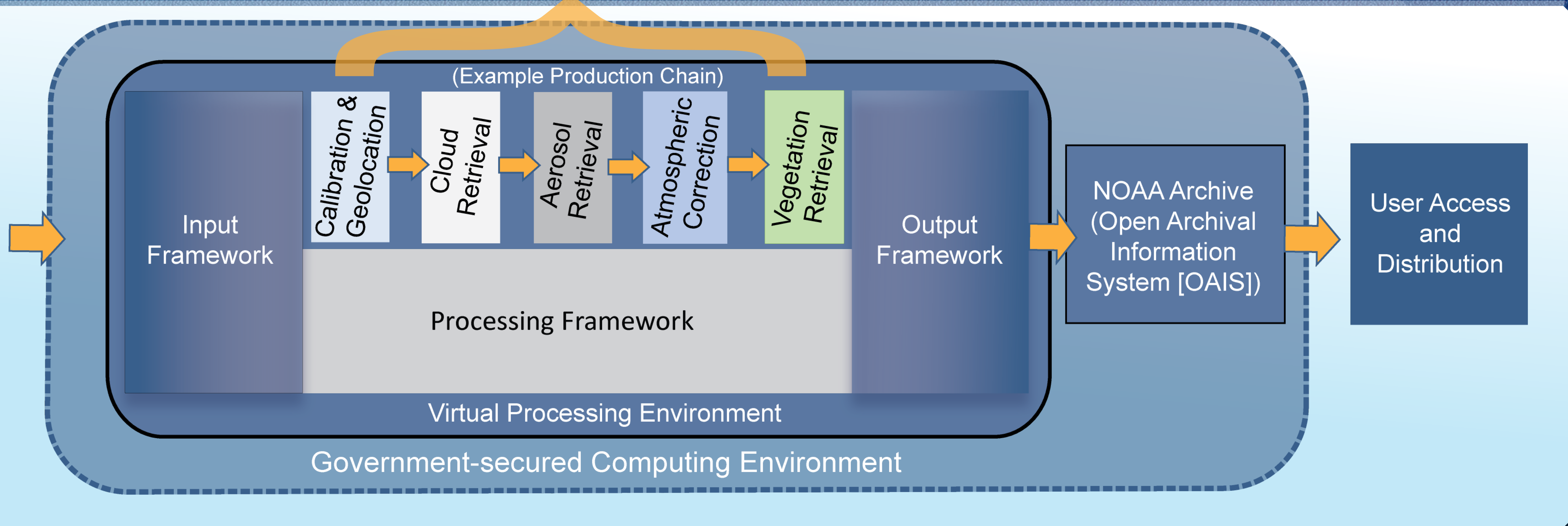
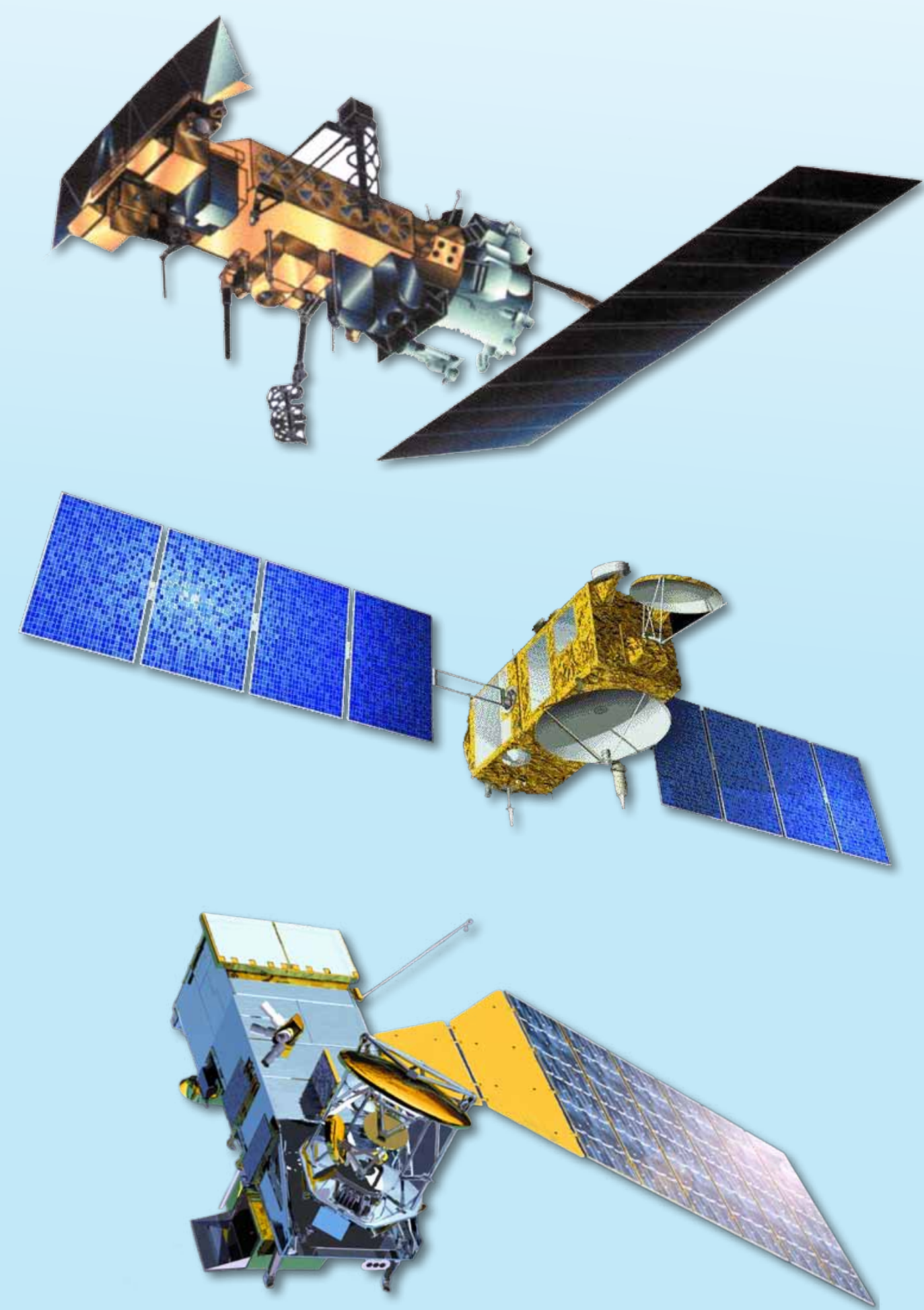
## 3. Continually Assessed & Improved

External Advisory Group regularly evaluates each CDR's value and trustworthiness, based in part on public feedback

## 4. Transparent

All CDR algorithms, processes and procedures are available for public inspection

Raw observations from U.S. and foreign operational and research missions (as appropriate)



## 5. Reproducible

Software adheres to NOAA's coding and security standards, is maintained under configuration control, and is executed within a portable virtual environment

## 6. Sustainable

A common input, processing and output system architecture is designed to allow affordable lifecycle maintenance and upgrades

## 7. Preserved

All data, documentation and source codes are preserved within NOAA's secure OAIS-compatible archive

## 8. Accessible

CDR data sets, documentation and source codes are publicly available via the Web

## Mission Statement

The CDR Program's mission is to affordably provide authoritative satellite climate records that enable informed decisions allowing our Nation to adapt responsibly to a changing environment.

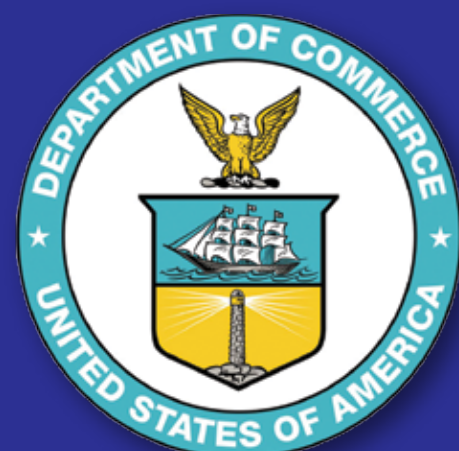


NOAA Climate Data Record Program is one of several efforts contributing to SCOPE-CM.

The CDR Program's approaches are informed by several expert bodies, including the U.S. National Academy of Sciences, the Global Climate Observing System (GCOS), the World Meteorological Organization's (WMO's) Sustained, Coordinated Processing of Environmental Satellite Data for Climate Monitoring (SCOPE-CM), and the CEOS Working Group on Climate. Key references from these and related bodies are provided below.

### References

1. Climate Data Records from Environmental Satellites (U.S. Academy of Sciences, 2004)
2. GCOS Climate Monitoring Principles (2009)
3. GCOS Implementation Plan (GCOS-92) and its Satellite Supplement (GCOS-107)
4. Guidelines for the Generation of Datasets and Products Meeting GCOS Requirements (GCOS-143)
5. U.S. Data Quality Act (2000)
6. Implementation Plan for the Sustained and Coordinated Processing of Environmental Satellite Data for Climate Monitoring (SCOPE-CM; 2009)



[www.ncdc.noaa.gov/cdr](http://www.ncdc.noaa.gov/cdr)

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