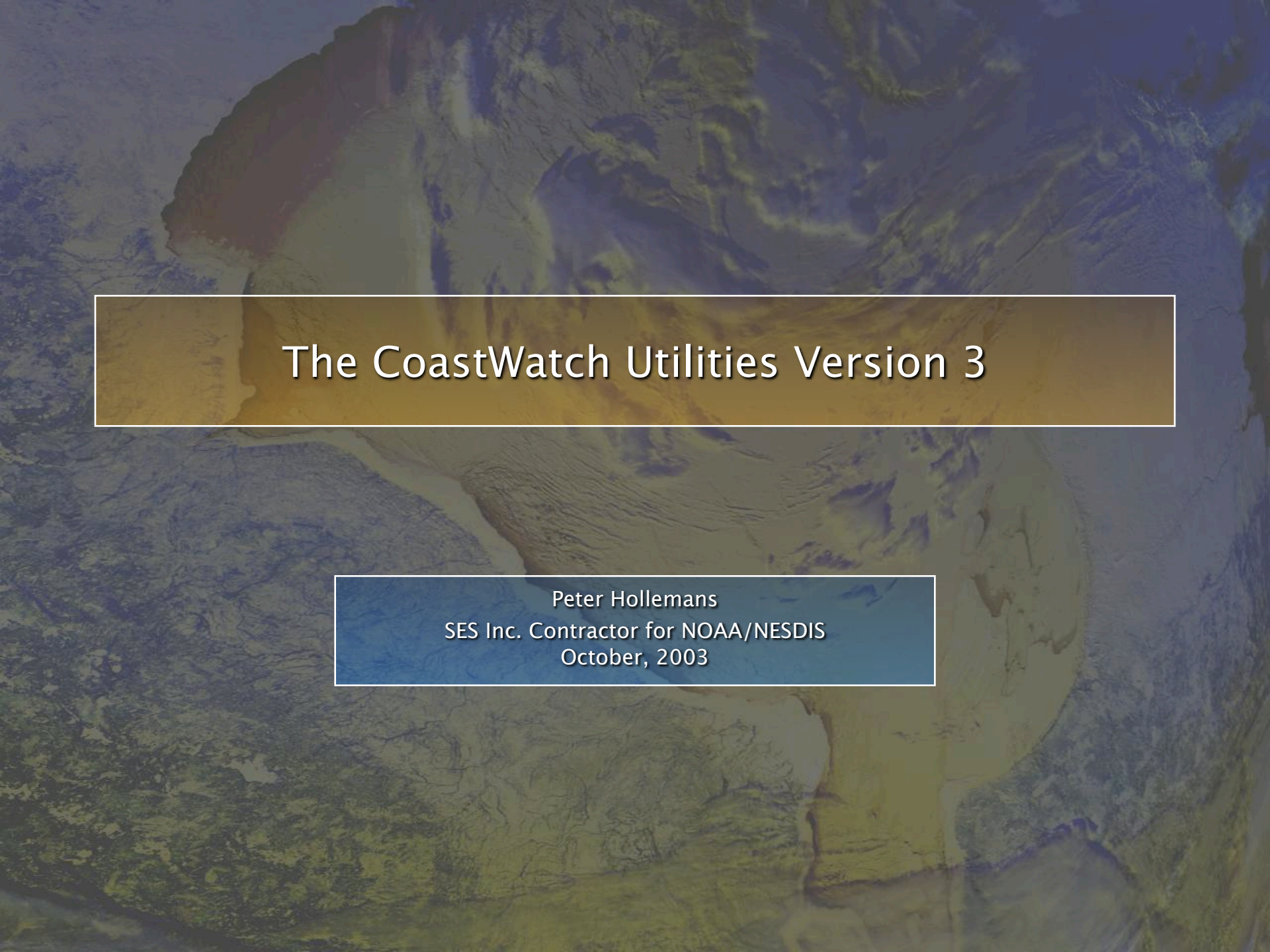


The background is an aerial bathymetric map of a coastal area, showing various depths and features. A semi-transparent white box with a thin black border is centered horizontally across the middle of the image. Inside this box, the title "The CoastWatch Utilities Version 3" is written in a white, sans-serif font.

The CoastWatch Utilities Version 3

The background is an aerial bathymetric map of a coastal area, showing various depths and features. A semi-transparent white box with a thin black border is centered horizontally across the middle of the image. Inside this box, the title "The CoastWatch Utilities Version 3" is written in a white, sans-serif font.

Peter Hollemans
SES Inc. Contractor for NOAA/NESDIS
October, 2003

CoastWatch Utilities Version 3

Overview

Utility
Requirements

✦ Utility Requirements

Utility
Implementation

✦ Utility Implementation

Future Work

✦ Future Work

CoastWatch Utilities Version 3

Website

Utility
Requirements

- ✦ Rendering of data preview plots for web browser display

Utility
Implementation

- ✦ Metadata printing

Future Work

- ✦ Conversion from storage data format to desired data format

CoastWatch Utilities Version 3

Research

Utility
Requirements

Utility
Implementation

Future Work

- # Download data of interest
- # Manual navigation correction
- # Multitemporal and multispatial data compositing
- # Product remapping
- # Data conversion and rendering

CoastWatch Utilities Version 3

Product Development

Utility Requirements

Utility Implementation

Future Work

- # Data product generation
- # Buoy matchup sampling
- # Pass browse image rendering
- # Metadata access
- # Navigation and cloud mask check
- # Operational monitoring

CoastWatch Utilities Version 3

Software Architecture

Utility
Requirements

Utility
Implementation

Future Work

Java classes and utilities

C native libraries for CWF, HDF, and
GCTP (map transformations)

Data files in CWF, HDF

CoastWatch Utilities Version 3

Rendering

Utility
Requirements

Utility
Implementation

Future Work

cwrender:

- Converts data to a color image format
- Supports:
 - PNG (default): 24-bit color lossless compression
 - JPEG: 24-bit color lossy compression
 - GeoTIFF: 24 or 8-bit color uncompressed
 - PDF: 24-bit lossless compression, high quality fonts and lines

CoastWatch Utilities Version 3

Rendering (cont ...)

Utility
Requirements

Utility
Implementation

Future Work

- Customizable data mapping: color enhancement, false color composite
- Customizable view: center point, magnification, image size
- Customizable overlays: coast lines, grid lines, land mask, cloud mask

CoastWatch Utilities Version 3

Rendering (cont ...)

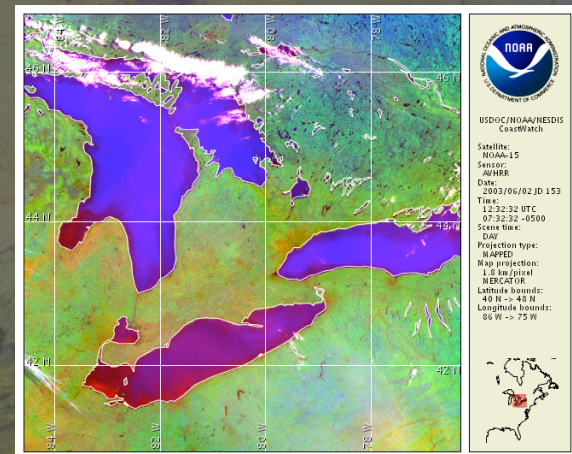
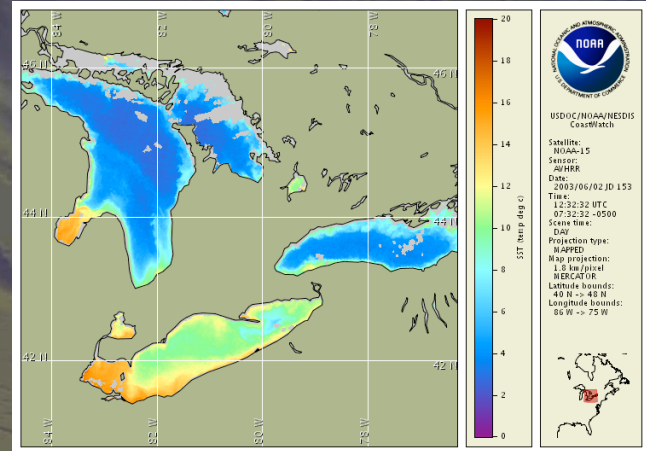
Utility Requirements

Utility Implementation

Future Work

Color enhancement

False color composite



CoastWatch Utilities Version 3

Information

Utility
Requirements

Utility
Implementation

Future Work

cwinfo:

- Date and time
- Satellite and sensor
- Projection parameters
- Variables

cwsample:

- Data sampling based on discrete Earth locations

cwstats:

- Min, max, mean, standard deviation
- Customizable data density

CoastWatch Utilities Version 3

Format Conversion

Utility
Requirements

Utility
Implementation

Future Work

✦ cwimport:

- Reads TeraScan HDF, CoastWatch HDF, CWF, NOAA1b
- Creates CoastWatch HDF

✦ cwexport:

- Reads CoastWatch HDF
- Creates binary, text, ArcGIS

CoastWatch Utilities Version 3

Data Manipulation

Utility
Requirements

Utility
Implementation

Future Work

✦ For product remapping:

- cwmaster (GUI)
- cwregister
- cwgraphics

✦ For creating new data:

- cwcomposite
- cwmath
- cwangles

✦ For correction:

- cwnavigate

CoastWatch Utilities Version 3

Network Access

Utility
Requirements

Utility
Implementation

Future Work

cwwdownload:

- Retrieves data for specified regions
- Customizable scene time, data age, satellite

cwstatus:

The screenshot displays the 'Server Status' window of the CoastWatch Utilities software. The window title is 'File Help' and the main title is 'Server Status'. It shows the host 'psbcw2.nesdis.noaa.gov updated at 2003/10/05 18:53:26 EDT'. Below this, there are sections for 'Incoming' and 'Waiting' data, both currently empty. The 'Online Data' section contains a table with columns for Satellite, Sensor, Date, Time, Scene, Orbit, Lines, and Station. The table lists various satellite passes from NOAA-17, NOAA-15, NOAA-16, and NOAA-17. At the bottom, there are two panels: 'Data Coverage' showing a globe with a highlighted region, and 'Data Preview' showing a satellite image of the highlighted region.

Satellite	Sensor	Date	Time	Scene	Orbit	Lines	Station
NOAA-17	AVHRR	2003/10/05	16:23	DAY	DESCENDING	4921	Wallops Island, ...
NOAA-17	AVHRR	2003/10/05	16:26	DAY	DESCENDING	5053	Miami, FL
NOAA-15	AVHRR	2003/10/05	16:50	DAY/NIGHT	DESCENDING	4255	Gilmore Creek, ...
NOAA-16	AVHRR	2003/10/05	18:04	DAY	ASCENDING	4744	Miami, FL
NOAA-16	AVHRR	2003/10/05	18:06	DAY	ASCENDING	5039	Wallops Island, ...
NOAA-17	AVHRR	2003/10/05	18:06	DAY	DESCENDING	4497	Monterey, CA
NOAA-15	AVHRR	2003/10/05	18:30	DAY/NIGHT	DESCENDING	4532	Gilmore Creek, ...
NOAA-17	AVHRR	2003/10/05	19:40	DAY/NIGHT	DESCENDING	4277	Gilmore Creek, ...
NOAA-16	AVHRR	2003/10/05	19:44	DAY	ASCENDING	5171	Miami, FL
NOAA-17	AVHRR	2003/10/05	19:47	DAY	DESCENDING	3783	Monterey, CA
NOAA-16	AVHRR	2003/10/05	19:49	DAY	ASCENDING	4413	Wallops Island, ...
NOAA-17	AVHRR	2003/10/05	19:52	DAY	DESCENDING	3582	Honolulu, HI
NOAA-15	AVHRR	2003/10/05	20:10	DAY/NIGHT	DESCENDING	4274	Gilmore Creek, ...
NOAA-17	AVHRR	2003/10/05	21:20	DAY/NIGHT	DESCENDING	4593	Gilmore Creek, ...
NOAA-16	AVHRR	2003/10/05	21:31	DAY	ASCENDING	4910	Miami, FL

CoastWatch Utilities Version 3

Availability

Utility
Requirements

Utility
Implementation

Future Work

- ✦ Available at: <http://turf.nesdis.noaa.gov/cwf>
- ✦ Operating systems: Windows, Linux, MacOS X, Solaris
- ✦ Requires Java Runtime Environment (JRE) 1.4 and up
- ✦ Update notices are emailed to interested users

CoastWatch Utilities Version 3

New Features

Utility
Requirements

Utility
Implementation

Future Work

- ✦ Support for more operating systems
- ✦ Support for more import formats, including XML based user-defined formats
- ✦ Integration with the CoastWatch Data Analysis Tool

CoastWatch Utilities Version 3

Documentation

Utility
Requirements

Utility
Implementation

Future Work

- ✦ Continuation of Java code and tool documentation
- ✦ Tutorial on common CoastWatch data processing tasks
- ✦ User guide for CDAT

CoastWatch Utilities Version 3

Summary

Utility
Requirements

Utility
Implementation

Future Work

✦ Utility Requirements:

- Web site
- Research
- Product development

✦ Utility Implementation:

- Software architecture: Java/C
- Tool groups: rendering, info, conversion, manipulation, network
- Available for Windows, Linux, MacOS X, Solaris

✦ Future Work:

- New formats
- Integration with CDAT
- More documentation

CoastWatch Utilities Version 3

Acknowledgements

Utility
Requirements

Utility
Implementation

Future Work

- ✦ Requirements and testing:
 - John Sapper
- ✦ GeoTIFF code and tips:
 - Mike Soracco
 - George Leshkevich
- ✦ Download testing:
 - Xiaofeng Li
 - Daniel Fredette
- ✦ Generic math testing:
 - Tom Leming
- ✦ Project management:
 - Ramesh Sinha