

NOAA COASTAL MAPPING PROGRAM

PROJECT COMPLETION REPORT

PROJECT LA0402

NEW ORLEANS LAKEFRONT AIRPORT, LAKE PONTCHARTRAIN TO THE INTRACOASTAL WATERWAY, LOUISIANA

Introduction

Coastal Mapping Program (CMP) Project LA0402 provides a highly accurate database of new digital shoreline data of the Inner Harbor Navigation Canal which stretches from the Mississippi River to Lake Pontchartrain, Louisiana.

Successful completion of this project resulted in a densification of the National Spatial Reference System (NSRS), a set of controlled metric-quality aerial photographs, and a Digital Cartographic Feature File (DCFF) of the coastal zone which meet the requirements of the NOAA CMP.

The project database consists of information measured and extracted from aerial photographs and metadata related to photogrammetric compilation. Base mapping was conducted in a digital environment using stereo softcopy photogrammetry and associated cartographic practices. Project survey data is referenced to the North American Datum of 1983 (NAD 83).

Project Design

The Requirements Branch (RB) of the Remote Sensing Division (RSD) formulated the photographic mission instructions for this project following the guidelines of the Standards For Aeronautical Surveys (FAA 405), April 1996. An Airport Obstruction Chart (AOC) survey was conducted for Lakefront Airport, New Orleans, LA OC-288, and a Compilation Report for the AOC Survey is referenced.

On a later date, December 15th, 2004, a 2-Way Memo for a Shoreline Request was generated by MCD for the same area, and sent to Mr. Edward Allen, who was Acting Chief of the Remote Sensing Division at the time. Further instructions were then created and discussed by the Requirements Branch (RB) for a CMP project utilizing the same photography as acquired for AOC 288. The project's purpose, geographic area of coverage, scope and priority were then laid out, and Coastal Project LA0402 was initiated.

Field Operations

Field operations consisted of the collection of ground control points and acquisition of aerial photographs. Aerial photographic survey operations were conducted in May 2003. In December of 2003, acquisition of ground control was tasked by the Requirements Branch as part of an Airport Obstruction Chart Survey (AOC number 288) for Lakefront Airport just outside of New Orleans. Information and control from this survey was later utilized for a coastal mapping project, LA0402, which was tasked in January of 2005. One strip of panchromatic photography was used for the coastal project, consisting of a total of four exposures. All photographs were acquired aboard a Cessna 310R flown by GRW Aerial Surveys, at a nominal scale of 1:30,000. Ground control data were acquired for the photographs as an integral part of the photographic mission operations in compliance with the NOAA Photo Mission SOP.

Aerotriangulation

Routine softcopy aerotriangulation methods were applied to establish the network of precise camera positions and other control for mapping, and to provide model parameters and orientation elements required for softcopy compilation. The ground control data were applied to help measure and adjust a strip of panchromatic photographs. This work was initiated by the RSD Applications Branch (AB) Airport Survey Program personnel in April 2004, utilizing a Digital Photogrammetric Workstation (DPW) which is a configuration of a computer processor and monitors, softcopy photogrammetry software (SOCET SET v. 5.0), stereo viewing equipment, and associated peripheral devices.

The MST (v.5.0) software module was utilized for the aerotriangulation process. Upon successful completion of the aerotriangulation process, the MST software provided the RMS of the standard deviations for all aerotriangulated points from which a predicted horizontal circular error of 2.2 meters was computed based on a 95% confidence level. The Compilation Report from AOC 288 was utilized as a reference for LA0402, and a copy is on file with other project data in the RSD AB Project Archive. Positional data is based on the North American Datum of 1983, and was originally measured in geographic coordinates, then the project was converted to the UTM Coordinate System (Zone 15N) prior to the initiation of shoreline compilation.

Compilation

The compilation phase of the project was accomplished by the RSD Applications Branch in January 2005. Digital mapping was accomplished using a DPW in conjunction with the SOCET SET Feature Extraction module. Feature identification and the assignment of cartographic codes were based on analysis of 1:30,000 scale panchromatic images, and information extracted from the appropriate NOAA Nautical Charts, and U.S. Coast Guard Light List. Cartographic feature attribution was assigned in compliance with the Coastal Cartographic Object Attribute Source Table (C-COAST). Nomenclature was assigned to selected cartographic features to refine general classification.

Cartographic features were compiled to meet a horizontal accuracy of 4.4 meters at the 95% confidence level. This predicted accuracy of compiled, well defined points was derived by doubling the circular error derived from Aerotriangulation statistics. As the

mapping only included a navigable canal and lake and not open ocean, no tide control was necessary for this project. Shorelines were compiled based on the current water levels at the time of photography.

The following provides information on aerial photographs used in the project completion process:

DATE	TIME (GMT)	FILM ROLL	PHOTOS	SCALE	WATER LEVEL
05-23-03	1710 – 1712	0310P01	#218 - 221	1:30,000	N/A

Quality Control / Final Review

The final review was completed by a senior AB CMP team member in February 2005. The DCFF was evaluated for completeness and accuracy. Quality Control procedures consisted of an on-line evaluation of digital compilation and hard copy products. The review involved inspecting stereo models on a DPW for correct cartographic feature codes selection, positional accuracies of features, and nomenclature, and a comparison of the project data with the largest scale nautical charts available. The cartographic feature attribution was judged to conform to C-COAST specification.

A copy of NOAA nautical chart 11367, Waveland to Catahoula Bay, 1:40,000 scale, 32nd edition, was used for chart comparison.

End Products and Deliverables

The following specifies the location and identification of end products generated during the completion of this project:

RSD Applications Branch Archive

- Hardcopy of the Project Completion Report (PCR)
- Page-size graphic plot of GC10564 file contents, attached to PCR
- Hardcopy of AOC288 Compilation Report

Remote Sensing Division Electronic Data Library

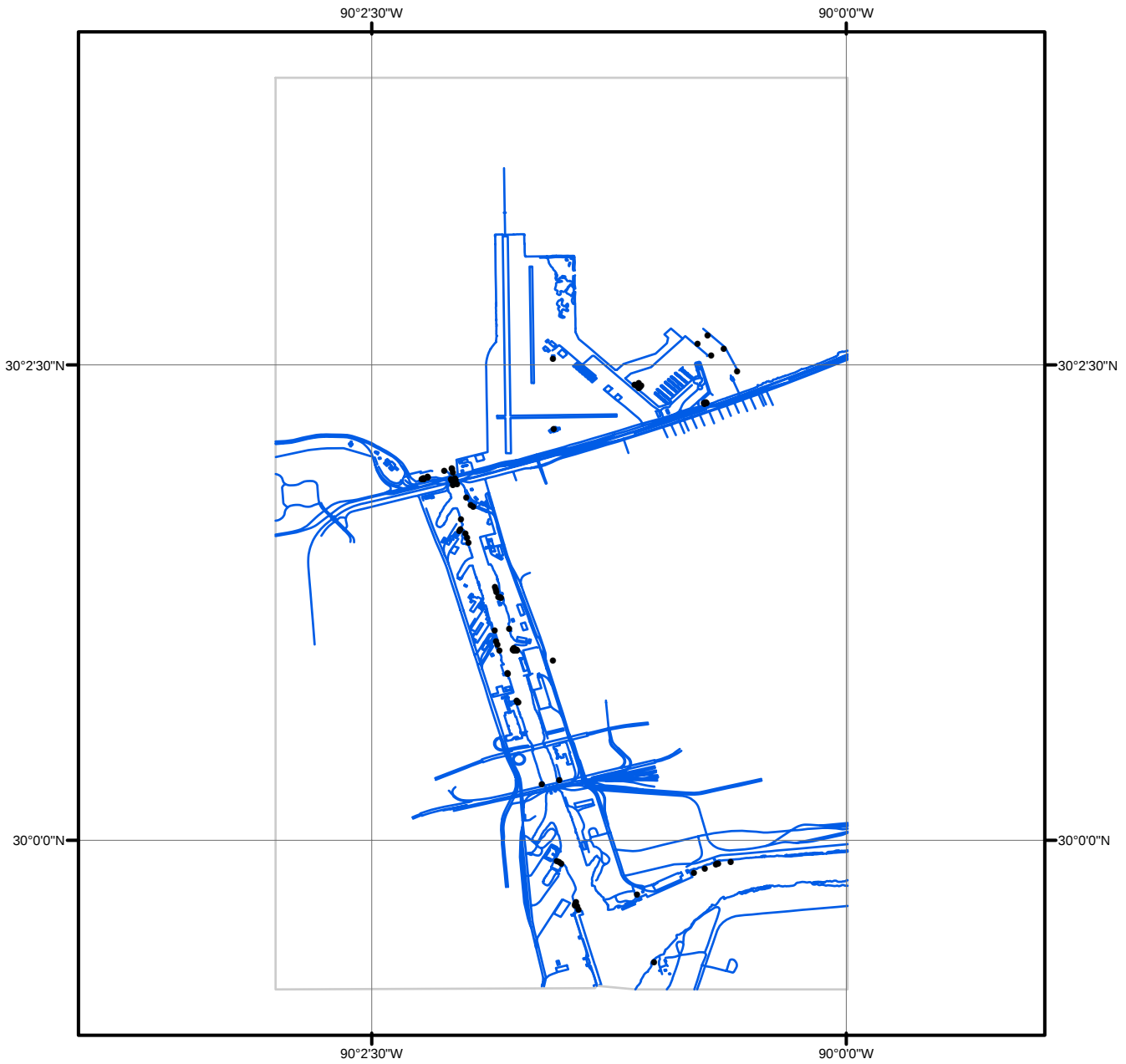
- Project Database
- Digital copy of DCFF GC10564 in ESRI shape file format
- Digital copy of the PCR in Adobe PDF format

NOAA Shoreline Data Explorer

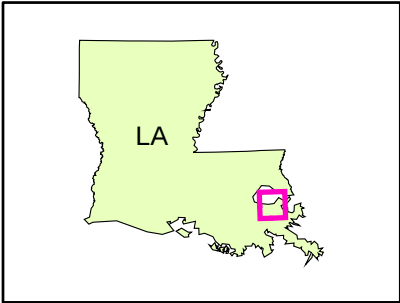
- DCFF for GC10564
- Metadata file for GC10564
- Digital copy of the PCR in Adobe PDF format

End of Report

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Overview



LA0402

GC10564