

# Arctic Network Inventory & Monitoring Program

U.S. Department of the Interior

**Data Management  
Standard Operating Procedure**  
NPS/ARCNDMSOP-2007-09



## Project Planning with the Trimble GeoXH

*Guidelines for collecting good GPS data*

### Summary

Monitoring projects are complex endeavors that require participation of multiple individuals. All stakeholders must share the efforts in collecting, managing, and analyzing data. This standard operating procedure describes the personnel roles and responsibilities for a typical monitoring project.

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### The Importance of Planning

Obtaining high data quality with Trimble GPS units requires a great deal of training, knowledge, experience and most of all planning.

**Poor planning results in poor data and wasted time and money.**

Without proper planning your \$7000 Trimble cannot achieve better accuracy than a \$100 Garmin (i.e. 6-10m). Data management staff cannot support unplanned GPS projects (See 'GPS Support Policy' below).

### GPS Support Policy

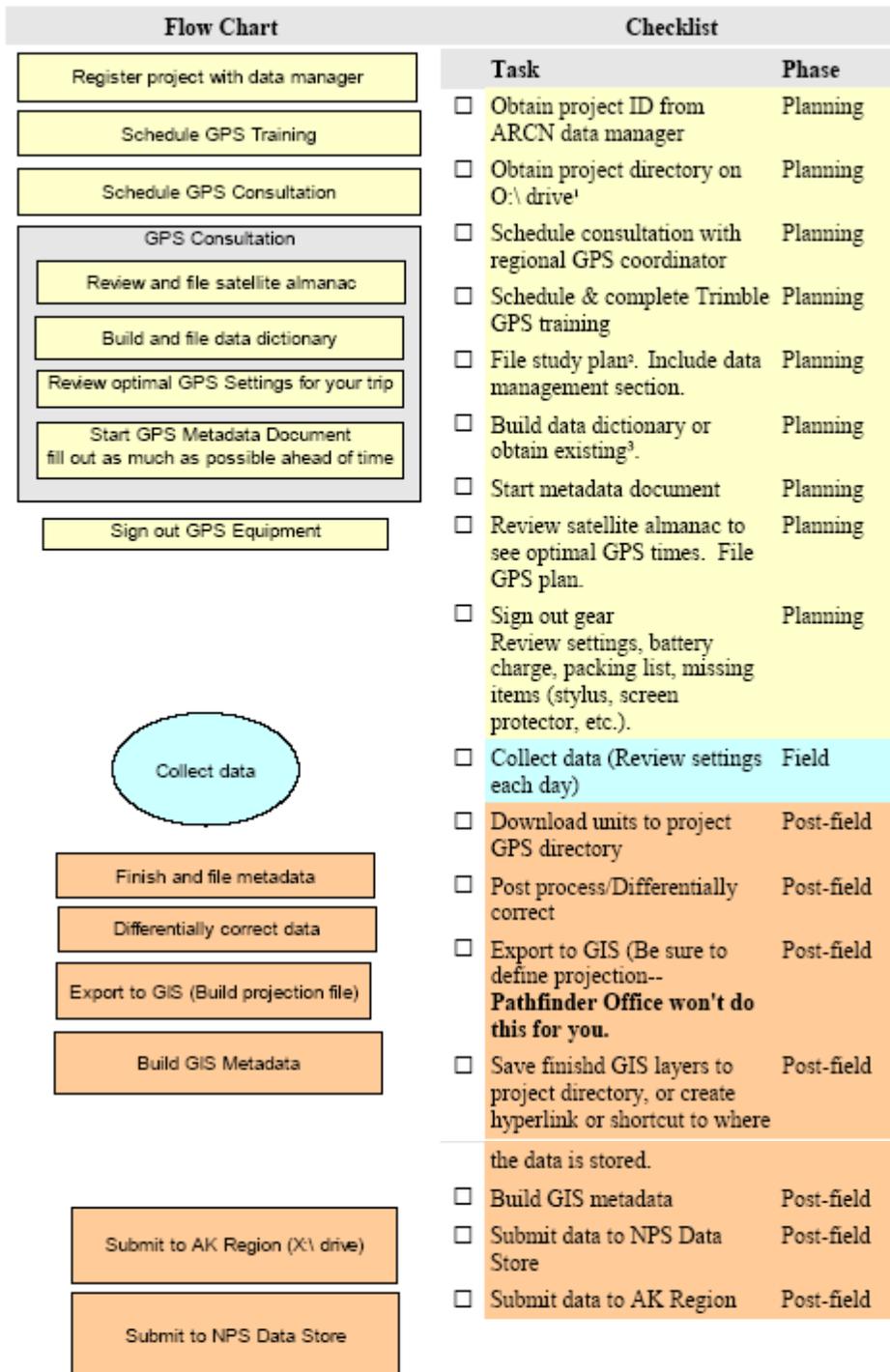
To enhance data quality data management staff will only support GPS data collection after the following requirements are met before the expedition:

- Data manager has reviewed the project data dictionary and the project study plan including the data management section.

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- A project ID has been registered with the data manager and a project directory structure has been created on the ARCN drive.
- A GPS metadata document (Appendix A) has been started ahead of time and completed after the trip.
- A satellite almanac and exposure plan has been downloaded and reviewed before the trip. Store a copy in the project's GPS directory.
- At least one member of the field crew has taken Trimble GPS training offered by the regional GPS coordinator.
- Complete a consultation with the regional GPS coordinator.

## Work Flow Diagram and Checklist



## Equipment Sign Out

Equipment is stored by the ARCN data manager.

- Review checklist
- Review equipment packing list in lid of GPS Pelican case.

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- Ensure all items are included. Replace missing items
- Review battery charge and settings
- Sign out on GPS tracking history sheet

## **Project Directory Structure**

Each registered ARCN project is assigned a project directory structure. This project directory structure is described in detail elsewhere, but is described here as it pertains to GPS data collection.

Trimble Pathfinder Office (PFO) software creates a project directory for each project. These PFO projects should be stored in project's GPS directory, with one subdirectory for each self-contained GPS project (Figure 1). The generalized path to GPS data is as follows:

**O:\Projects\ARCN\_PROJECT\_00000\_PINAME\_Brief\_Project\_Title\Data\GPS\**

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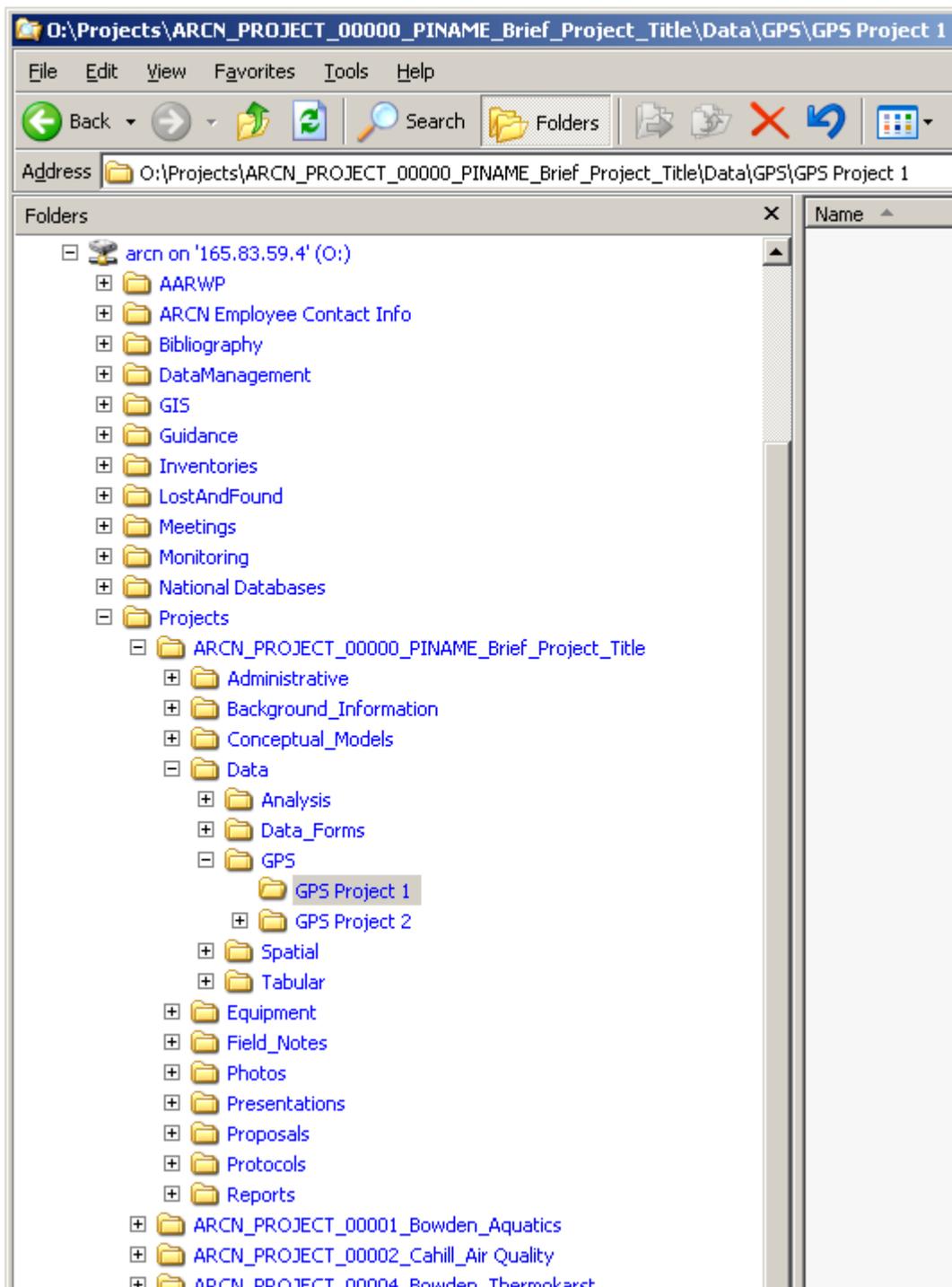


Figure 1: Arctic Network directory structure as it pertains to GPS data

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## ARCN GPS Project Metadata Form

Use the following form to record information about your GPS excursion.

Project ID \_\_\_\_\_

Lead PI \_\_\_\_\_

Project directory \_\_\_\_\_

Study plan subdirectory and filename \_\_\_\_\_

Data dictionary subdirectory and filename \_\_\_\_\_

Metadata completed by: \_\_\_\_\_ Date: \_\_\_\_\_

Date of data collection (mm/dd/yyyy): \_\_\_\_\_

Time of data collection: Start: \_\_\_\_\_ Stop: \_\_\_\_\_

Data collector(s) name: \_\_\_\_\_

Collector's contact information: \_\_\_\_\_

Geographic location of GPS survey: \_\_\_\_\_

Park/Forest/Preserve/County: \_\_\_\_\_

State/Province: \_\_\_\_\_

Purpose of GPS survey: (why) \_\_\_\_\_

GPS equipment: Make : \_ Model \_\_\_\_\_

Differential Correction (circle):

No    CORSWAASPost Processing    Other: \_\_\_\_\_  
(e.g., Satellite Differential, Mobile Base Station)

Method of travel used to collect data (circle):

Helicopter    Fixed Wing    ATV    Foot    Other: \_\_\_\_\_  
(e.g., Mountain Bike, Boat)

Number of waypoints collected: \_\_\_\_\_

Number of tracks collected: \_\_\_\_\_

Track Logging Interval (circle): \_\_\_\_\_ Time (Interval Value \_\_\_\_\_)  
Distance (Interval Value & Units \_\_\_\_\_)

Record Dilution of Precision (DOP) or estimated error (EHE/EPE) range of value  
Min \_\_\_\_\_ Max \_\_\_\_\_

Verbal (radioed) or Written Data Output (If Applicable)

Units (circle): N/A    Meters    Feet

Coordinate system (position format) (check):

\_\_\_\_ Lat/Long - Degrees Minutes & Seconds (ddd° mm' ss.s")

\_\_\_\_ Lat/Long - Degrees & Decimal Minutes (ddd° mm.mmm')

\_\_\_\_ Lat/Long - Decimal Degrees (ddd.dddd°)

\_\_\_\_ UTM    UTM zone \_\_\_\_\_

\_\_\_\_ Other: \_\_\_\_\_

Datum (circle): NAD27CONUS    NAD27Alaska    NAD83    WGS84

Other: \_\_\_\_\_

Electronic Data Output

File information contact person: \_\_\_\_\_

Machine or disk name: \_\_\_\_\_

Directory Path (e.g., c:/working/02252003/): \_\_\_\_\_

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\_\_\_\_\_  
GPS Download Software: \_\_\_\_\_  
ASCII Text Output File Name(s) (e.g., \*.txt): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
ESRI Output File (shapefile, coverage) Parameters:  
Units (*circle*): N/A Meters Feet  
Coordinate system (projection) (*check*):  
\_\_\_ Lat/Long (Geographic) - Decimal Degrees (ddd.dddd°)  
\_\_\_ UTM UTM zone \_\_\_\_\_  
\_\_\_ Other: \_\_\_\_\_ (e.g., State Plane, Albers Equal Area)  
Datum (*circle*): NAD27CONUS NAD27Alaska NAD83 WGS84  
Other: \_\_\_\_\_

ESRI File Name(s) (e.g., \*.shp, \*.shx, \*.dbf):\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe GPS mission (provide any unique and useful information pertinent to the data collected during the GPS mission, or information about the mission itself): (*How*)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## About This Standard Operating Procedure

**Version:** 1.0

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**Abstract:** Monitoring projects are complex endeavors that require participation of multiple individuals. All stakeholders must share the efforts in collecting, managing, and analyzing data. This standard operating procedure describes the personnel roles and responsibilities for a typical monitoring project.

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## Revision History

Version	Version Date	Revised By	Changes
1.0	20071118	S. Miller	Original

This table reflects changes to this document. Version numbers will be incremented by one (e.g., Version 1.3 to Version 2.0) each time there is a significant change in the process and/or changes are made that affect the interpretation of the data. Version numbers will be incremented after the decimal (e.g., Version 1.6 to Version 1.7...1.10....1.21) when there are changes to grammar, spelling, or formatting, or minor modifications in the process that do not affect the interpretation of data.