Appendix A File and folder locations

General summary: This appendix explains where to find files for the SPARTAN project. There are three general locations: 1) Stetson sever folders gsnider and cweagle, 2) Shared droxbox folder SPARTAN_DB, and 3) Shared google drive folder SPARTAN_GD .

Table 1: Site code legend

Site Name	Site Code
Bandung, Indonesia	IDBD
Buenos Aires, Argentina	ARCB
Emory University, Atlanta, USA	USEM
Mammoth Cave National Park, KY, USA	USMC
IIT Kanpur, India	INKA
Manila Observatory, Philippines	PHMO
Nes Ziona, Israel	ILNZ
Tsinghua University, Beijing, China	CHTS
Dhaka University, Bangladesh	BDDU
University of Ilorin, Nigeria	NGIL
Pretoria, South Africa	ZAPR
Vietnam Academy of sciences, Hanoi	VNHN
Halifax, Dalhousie	CADU

1. Pre & post weighing:

Equipment, Triplicate filter weighing, reproducibility criteria, equilibration, humidity conditions.

See **Dropbox**: HERC/Procedures and Papers/Filter Weighing Procedure.docx
--and**--**
Dropbox: HERC/Procedures and Papers/Sartorius Micro Balance SOP (08-04-13).docx
--and--
Dropbox: HERC/Filter Masses/Masses for all locations_{date}.xlsx

2. Shipping and sampling of cartridges

See **Google Drive**: Standard Operating Procedures/SPARTAN Network Drafts/SPARTAN SOP draft 4.pdf
---or--
Google Drive: SPARTAN Network/Instruction Manuals/AirPhoton filter/2013 Airphoton_user's_manual_initial_programming.pdf

3. Merging absolute PM mass data with AirPhoton instrument flow logs

Digital flows are not always available. When they are, it provides a useful secondary reference point.
Hand recorded data is done on paper. We (in particular Crystal Weagle) have been compiling log sheets collecting flow data into excel format.
The first column of

Digitally-recorded AirPhoton flow data: SPARTAN_GD/SPARTAN Global Sampling/SITES/[Site name]/[SiteCode_cartridge#]/[instrument #, e.g. SS4016]/FC00[run#]-[filter#].csv (e.g. FC0047-1.csv)

E-log $PM_{2.5}$ flow data: Google Drive: SPARTAN Global Sampling/Sites/{site name (code)}/{code}_XXX/{code}_XXX Analysis

Raw $PM_{2.5}$ data: Google Drive: **SPARTAN_GD/Website/UPLOAD_data/{site name}/{site code}_PM2.5/PM25_[data range YYYYMMDD_YYYYMMDD_[site name]_XXXX.csv**

4. Converting AERONET AOD into hourly and daily means

AERONET files are save in the following format/location:

See **Stetson**: gsnider/SPARTAN/neph_condensing/AOD/
YY0101_YY1231_[AERONET_Site_name].ONEILL_15{or 20}.csv

For example, the level 1.5 2015 AOD data from Vietnam Academy is 150101_151231_NGHIA_DO.ONEILL_15.csv

To process AERONET data, run AERONET_scan.m. Matlab file "AERONET_scan.m" will read annual collections of AOD data and convert into hourly-mean values. Raw AOD data is spaced by several minutes per log or hours, depending on cloud coverage, but averaged into hourly blocks in order to align with hourly $PM_{2.5}$ data (c.f. **step 6).**

Go to **Stetson**: gsnider/SPARTAN/neph_condensing/AERONET_scan.m

Output files "AERONET_scan.m" data are in the format

AOD_YYYYMMDD_YYYYMMDD_[Site_name/code]_hourly.csv
AOD_YYYYMMDD_YYYYMMDD_[Site_name/code]_daily.csv
AOD_YYYYMMDD_YYYYMMDD_[Site_name/code]_sat.csv

The final file "*sat.csv", keeps only daily values from between 10:00 and 14:00

5. Nephelometer data processing

Raw AirPhoton nephelometer data is located in the following folder path structure

SPARTAN_GD/SPARTAN Global Sampling/SITES/[Site name]/[Site name]_nephelometer/[instrument# & date range]/IN[two-digit neph #]00[file number].csv (or txt)

e.g. **SPARTAN_GD/SPARTAN Global Sampling/SITES/Beijing, China (CHTS)/Beijing_nephelometer/IN21_June2014_Aug_2014/IN210014.csv**

Raw neph data contains the following information (complete list): Unit#, Date/Time, RF_PMT, RF_Ref, GF_PMT, GF_REF, BF_PMT, BF_REF, RB_PMT, RB_REF, GB_PMT, GB_REF, BB_PMT, BB_REF,Temp ,Pressure, RH%, PMT DARK, Forw Dark Ref, Back Dark Ref, Back scatt Red, Back scatt Green, Back scatt Blue , Total scatt Red, Total scatt Green, Total scatt Blue, Fan RPM

Currently-Shared folders:

Weizman Institute, Rehovot, Israel
Google Drive (Graydon Snider)/SPARTAN/ILNZ_shared_folder/Nephelometer Data

CITEDEF, Buenos Aires, Argentina
DropBox (Graydon Snider)/CITEDEF_ARCB_Buenos_Aires/Nep_ALL

IIT Bandung, Indonesia
DropBox (Crystal Weagle)/SPARTAN/Bandung/IDBD_neph_Data

For information on cleaning and calibrating nephelometer (e.g. with dry gases CO_2, air, N_2, SF_6) see section 5c.

Calibration program go to **Google Drive**: SPARTAN Network/Instruction Manuals/AirPhoton Nephelometer/software for neph/NephCal 1.1.htm

Processing raw nephelometer data, converting to hourly and daily values, and screening for b_{sp} > 1300 Mm^{-1}, RH > 80%.

Go to **Stetson**: gsnider/SPARTAN/neph_condensing/reading_neph_files.m

On Stetson, the files are saved as:

Data1/gsnider/SPARTAN/neph_condensing/[Site name_Code]/Neph/[Neph output file names]

Where **[Neph output file names] =**
Neph#_startdate_enddate_[site code]_hourly.csv
Neph#_startdate_enddate_[site code]_Daily.csv
Neph#_startdate_enddate_[site code]_Daily_sat.csv

6. Black Carbon Analysis

Quartz filter reference, SSR calibration, obtaining σ_{abs} cross section (or estimating one), reflectance values within 20 < R < 90.

See **Dropbox**:HERC/Procedures and Papers/BC Analysis Instrument Setup and Use (SSR and SSTOT2.1).docx
--and--
Google Drive: Standard Operating Procedures/SPARTAN Manisfesto/BC_IC_and_ICP_filter_extractions.docx

Black carbon concentrations (via SSR) shared file

Go to **Dropbox**:HERC/SSR_for_all_locations_{last update}.xlsx

7. Ion (anion/cation) preparation

List of useful anions and cations obtained, standards, sampling processing, LOD,

> See **Google Drive**: SPARTAN Network/IC speciation/ANIONS **or** CATIONS/{Site Name}/{Site Code}_{date/sample batch}.xlsx

Raw cation/anion data:

Anions (in Dell Optiplex 9010 computer):

> **Go to** ChromeleonLocal/Instrument Data/ICS_1600/Data/SPARTAN/ [Site_name&Code]/[date]

Cations (in APC XS 1300 computer):

> **Go to** ROB_LAB_PRINTER_1/2014/SPARTAN_Cations/[Site_name&Code]/[date]

File naming system follows the form [date run]_[4-letter abbrev.]_[cartridge #]

8. ICP-MS trace metal preparation

Acid digestion spreadsheet files

> See **Google Drive**: SPARTAN Network/ICP speciation/{Site Name}/ICP_{Site Code}_summary_Data.xlsx

9. Reconstructed fine aerosol mass

Merging Absolute PM, BC, ICP-MS and IC masses, organic 'residue' inference,

> **Google Drive**: SPARTAN Network/ICP_IC_BC_merged/{site code}.xlsx

10. Merging AOD, b_{sp} and $PM_{2.5}$ data

Matlab program for screening merged data

Stetson: gsnider/SPARTAN/neph_condensing/PM_25_condensing_v2.m

Requires as **INPUT**: The (to-be) merged files have the following format:

Neph: **Neph[instr #]_[start date]_[end date]_[site code]_hourly.csv**
AOD: **AOD_[start date]_[end date]_[site code]_hourly.csv**
$PM_{2.5}$ (phys and chem): **PM25_[start date]_[end date]_[site code].csv**

Output files are in format

PMhourly_[start date]_[end date]_[site code].csv
PMdaily_[start date]_[end date]_[site code].csv

Processed output data is located in either of two places:

Stetson: gsnider/SPARTAN/neph_condensing/PM25/[Site name_code]/PM25/

Or

Raw $PM_{2.5}$ data: Google Drive: **SPARTAN_GD/Website/UPLOAD_data/{site name}/{site code}_PM2.5/PM{hourly I daily}_YYYYMMDD_YYYYMMDD_[site code].csv**

11. Uploading content to SPARTAN website

Go to Spartan-network.org for all data uploading

Data to be uploaded:

See **Google Drive**:Website/UPLOAD_data/{Site Name}/{Site Code}_PM2.5/PMhourly_{date_range yyyymmdd}.csv

12. Harvard Impactor information

Filter masses, IC, and ICP-MS data

Masses: **Dropbox**:HERC/Filter_masses /HARVIM_masses.xlsx
IC: **Google Drive**: IC_speciation/{Anions | Cations}/Harvard Impactor/
ICP-MS: **Google Drive:** IC_speciation/Harvard Impactor/