

1. Download the most recent version of Aspen for you computer
 - a) <https://www.eol.ucar.edu/software/aspen>
 - b) e.g. for Mac OSX and Windows: AspenV3.1-7775

2. Create a local folder where you will download Global Hawk GPS dropsonde D-Files for the current mission (e.g. YYYYMMDDgh)
 - a) Create a sub directory called “*dfiles*” >> raw D-Files from the GH are downloaded here
 - b) Create a 2nd sub directory called “*output*” >> Aspen output can be put here

3. Setting up the Sounding Database & Opening the Aspen Application
 - a) Remove all old *soundings.sqlite* files from your computer (if there are any) before you open Aspen
 - b) If you are starting dropsonde processing from the beginning of the flight >> open Aspen
 - c) If you are starting a dropsonde processing shift in the middle of a flight >> get *soundings.sqlite* from the previous dropsonde processor and put it in YYYYMMDDgh >> open Aspen
 - d) A pop-up window called *Locate Sounding Database* will appear when you initially launch Aspen
 - Select Ok if this is the beginning of the flight >> Aspen creates a new *soundings.sqlite* file in your home directory (e.g. /Users/jasonunion/soundings.sqlite)
 - ...or select *Browse* if you have received a *soundings.sqlite* from a previous sonde operator >> point to that *soundings.sqlite* file in YYYYMMDDgh

4. Select the Configuration Set for Processing
 - a) Aspen >> Preferences >> Select Active Configuration Set 1 >> “*mini-dropsonde*”

5. Under *mini-dropsonde* >> select “*Edit*” >> Advanced Configuration Management window (these edits will only have to be made the 1st time Aspen is opened)
 - a) QC Parameters
 - No changes needed
 - b) Processing
 - QC Comment (EOL File Only) >> “*Preliminary QC Data. Not Intended for Research Purposes*”
 - Fixed Data Source and Destination Directory >> select “*Enabled*”
 - Fixed Data Source and Destination Directory >> select “*Change*” >> select local mission directory you set up in step #2 >> e.g. /Users/jason/desktop/YYYYMMDDgh
 - c) WMO
 - Message Type >> *TEMP*
 - Upsonde abbreviated header (if take-off is from Wallops) >> *UZNT13*
 - Upsonde abbreviated header (if take-off is from Edwards AFB) >> *UZPN13*
 - Upsonde ICAO code >> *KWBC* (note: this may also have to be changed in the WMO tab when the 1st sonde gets processed)
 - Email address for TEMP >> change from “*nobody*” to >> *rthkwbc@mailgate2.nws.noaa.gov*
 - Select >> “*Append NNNN terminator*”

- d) Auto Save
 - Select >> “Auto Save Enable”
 - Change Auto Save Directory to desired directory to save Aspen’s output data
 - e.g. /Users/jason/Desktop/YYYYMMDDgh/output
 - QC Output Formats >> Select >> “EOL (.eol), “NOAA FRD (.frd)”
 - Skew-T Output Formats >> Select >> “PNG (.png)”
 - WMO >> Select >> “Text (.txt)”
 - e) Synoptic Map
 - Geographical Database >> should default to the local directory where Aspen resides...e.g. Users/Jason/AspenV31-7775/Geodata/ne1to50m.sqlite
 - Sounding Database >> this is the *soundings.sqlite* file that you set up in Step 3d >> if this step was skipped, just select “Change” to browse for the *soundings.sqlite* that you want to use
 - Synoptic Map title >> enter the desire name of the map (e.g. YYYYMMDDgh)
 - Note: if this is the beginning of the flight >> before the 1st dropsonde is processed >> click the Earth icon in the main Aspen window >> select (check box) any old D-files in the listing on the right side of the panel and select >> *Delete* >> to remove any old drops in the listing
 - f) Visual
 - XY Graph Scale Limits >> no changes needed (use the default *AutoScale* values)
 - Skew-T Graph Settings >> Temperature (degC) >> min=-80; max=40
 - Skew-T Graph Settings >> Pressure (mb) >> min=50; max=1050
 - Keep all other Skew-T values set to their default values
 - Note: these changes are important: we want the Skew-T graphs to look consistent so that users can easily browse though the GPS dropsonde data after the missions
6. Aspen Parameters that need to be set when the 1st dropsonde is opened
- a) Comm tab (these parameters should only need to be set once)
 - Agency/Aircraft >> change to >> “NA872”
 - Mission Storm System: if Wallops take-off >> *WXWXA*
 - Mission Storm System: if Edwards AFB take-off >> *WXWXE*
 - Mission ID: get from CARCAH (e.g. *LESLIE*, *TRAIN*, *HS3P25*, etc.)
 - Mission ID for the 2016 ENSO campaign >> *ENRR#* (for the 1st GH ENRR mission, # is “1”...for the 2nd mission, # is “2”, etc.)
 - ICAO id >> KWBC
 - Note: CARCAH can be contacted on xchat (#CARCAH) or at: (305) 229-4474
 - Note: the *Observation Number* needs to be updated for each dropsonde that is processed (start with “01”).
 - b) WMO Tab: OB # (this number needs to be updated for each dropsonde)
 - Note: when a dropsonde is 1st opened, Aspen just inserts the OB # as "99"...DO NOT transmit a sonde with a “99” OB #
 - Note: after you enter the OB # for a given dropsonde (under the *Comm* tab), you must go to the *WMO* tab and select the *Save* icon to save the WMO message with the updated new OB #.
 - Note: saving this file is important since the WMO file with the default “OB 99” (that was saved when the file was first opened) will not be overwritten with the updated WMO message with the correct OB #;
 - Note: when saving the updated WMO file, the WMO that should be overwritten will be in the format *DYYYYDDMM_HHMMSS_PWMO.txt*

7. Excel Flight Log
 - a) Jason Dunion will create a new Google Sheet (dropsonde log sheet) to share with the dropsonde processing group using the NOAA Google Drive before each mission. The file naming format will be YYYYMMDD_GH_DROPLOG. Dropsonde information and notes should be included in this file as the flight progresses.
8. Sending a QCed dropsonde WMO message to the NWS Gateway
 - a) See Sec. II below for the Mac Mail or Google Mail options for sending WMO off to the NWS Gateway
9. Sending a Corrected Report (if the transmitted OB has an error and needs to be resent)
 - a) Comm tab >> check "Corrected Report" box
 - b) WMO tab >> click all of the 61616 lines >> click modify >> change "OB XX" to "OB XX CCA" >> Select the red "x" on the box to close and save the changes
 - c) select the *Save* icon before clicking another Aspen tab or "CCA" edits will be lost
 - d) Note: for GH dropsondes, there may be 3 or 4 61616 lines that need to be modified in the WMO message
10. Monitoring TEMP DROP messages coming through the NWS Gateway
 - a) Check the NHC recon site:
 - Atlantic: <http://www.nhc.noaa.gov/text/MIAREPNT3.shtml>
 - EPAC: <http://www.nhc.noaa.gov/text/MIAREPPN3.shtml>
 - b) If you see your TEMPDROP OBs coming in to this NHC page, they are making it through the NWS Gateway. This is also where CARCAH is checking to make sure TEMPDROPS are coming in.
 - c) An addition option for checking on OBs getting through the NWS Gateway is to check with CARCAH on xchat (use the CARCAH channel)

11. Other Useful Websites For Situational Awareness

Ocean Prediction Center- Unified Surface Analysis (Surface Pressure Map)

<http://www.opc.ncep.noaa.gov>

University of Wisconsin MIMIC TPW Imagery (~600-925 mb tropical moisture)

<http://tropic.ssec.wisc.edu/real-time/mimic-tpw/global/main.html>

University of Wisconsin-CIMSS Upper-Level Water Vapor Winds (100-500 mb)

<http://tropic.ssec.wisc.edu/real-time/windmain.php?&basin=atlantic&sat=wg8&prod=wwir&zoom=&time=>

<http://tropic.ssec.wisc.edu/real-time/windmain.php?&basin=eastpac&sat=wg9&prod=wwir&zoom=&time=>

University of Wisconsin-CIMSS Low to Mid-Level Cloud-Drift Winds (400-950 mb)

<http://tropic.ssec.wisc.edu/real-time/windmain.php?&basin=atlantic&sat=wg8&prod=ir&zoom=&time=>

<http://tropic.ssec.wisc.edu/real-time/windmain.php?&basin=eastpac&sat=wg9&prod=ir&zoom=&time=>

NOAA NHC SST Analyses (good 1st guess for expected surface temperature in soundings)

<http://www.nhc.noaa.gov/aboutsst.php>

- a) GH D-Files will be transmitted automatically to the HRD FTP server in real-time
 - ftp://ftp.aoml.noaa.gov/pub/hrd/data/global_hawk/shout2016/incoming/
 - b) Set up a web browser and download the D-Files to your local *YYYYMMDDgh/dfiles* folder from this link as they arrive on the FTP server
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- a) Method 1: set up your Mac Mail with a *WMO Dropsonde* account (easiest set up option)
 - Mac Mail >> Preferences >> Accounts >> select >> "+" (add account) >> "Add Other Mail Account"
 - Full Name >> WMO Dropsondes
 - Email Address >> sonde-gts@eol.ucar.edu
 - User Name >> ncarsoundings
 - Password >> XXXX >> contact Jason Dunion: jason.dunion@noaa.gov
 - After the account verifies >> Next >> *Incoming Mail Server Info* box appears
 - Account Type >> POP
 - (Incoming) Mail Server >> smtp.googlemail.com
 - User Name >> ncarsoundings
 - Password >> XXXX >> contact Jason Dunion: jason.dunion@noaa.gov
 - Select >> Next >> *Outgoing Mail Server Info* box appears
 - (Outgoing) SMTP server >> smtp.googlemail.com
 - User Name >> ncarsoundings
 - Password >> XXXX >> contact Jason Dunion: jason.dunion@noaa.gov
 - Select >> *Create*
 - WMO Dropsondes should now appear under >> Mac Mail >> Preferences >> Accounts
 - Click on the WMO Dropsonde account and make sure that the *Enable this account* box is checked while you are processing dropsondes (this account can be turned off when not in use)
 - When sending a WMO message to the NWS Gateway >> from the Aspen tab (WMO message should be displayed here) >> select >> *Email*
 - Mac Mail should generate an email addressed to: rthkwbc@mailgate2.nws.noaa.gov >> this is the address that was set up in >> Step 4c of the Aspen: Setup for Global Hawk Missions section
 - Include a CC to: sonde-gts@eol.ucar.edu in each WMO email that is sent off
 - Note: this Mac Mail account can be turned on and off >> Preferences >> Accounts >> Advanced tab >> Enable this account
 - b) Method 2: Use Google Mail
 - Sign into Google Mail >> login: ncarsoundings@gmail.com; password: YYYY >> contact Jason Dunion: jason.dunion@noaa.gov
 - Emails are sent from: sonde-gts@eol.ucar.edu
 - Emails are sent to: rthkwbc@mailgate2.nws.noaa.gov
 - Add a CC to: sonde-gts@eol.ucar.edu
 - Subject line: *ASPEN generated WMO message*
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- a) For each dropsonde, send this ASPEN output to ESRL: .eol, .frd, skew-t, WMO, and synoptic maps
 - b) ftp <ftp1.esrl.noaa.gov> >> username: psdguest; password: ZZZZ >> contact Jason Dunion: jason.dunion@noaa.gov
 - c) cd psd2/gh_dropsonde
 - d) Note: this should be done after each dropsonde is processed to make sure the data are getting out to the science team quickly (especially important for MTS use by mission science)
 - e) Note: Useful programs for FTPing quickly during a long mission: Fetch, Transmit, & FileZilla
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- a) Generate synoptic charts for all mandatory levels
 - Aspen >> Select the globe icon (synoptic charts) >> select *Plot All* >> select *Zoom* to desired size for viewing >> select *Pan* to center the plotted wind barbs
 - File >> Save All Synoptic Levels >> browse to output directory >> Aspen creates separate png images for each mandatory level
 - create a directory called YYYYMMDDgh_”your last name”
 - create 6 subdirectories called “*dfiles*”, “*eol*”, “*frd*”, “*skewt*”, “*wmo*”, and “*synoptic*”
 - include your *soundings.sqlite* file in the “*synoptic*” directory
 - If this is NOT the last shift >> email your *soundings.sqlite file* to the next dropsonde processor scheduled to relieve you
 - If this IS the last shift >> download the flight log spreadsheet from the Google drive and save it in the folder YYYYMMDDgh_”your last name”
 - b) Compress/zip the folder YYYYMMDDgh_”your last name” and email it to: jason.dunion@noaa.gov