Step by step for SteveC on dealing with Multi-Day HCN Files

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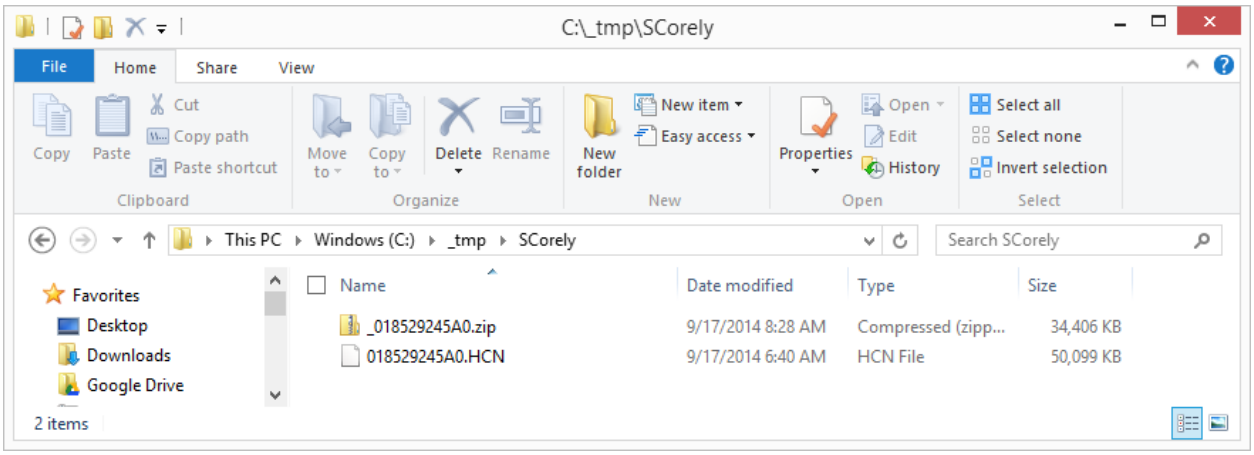
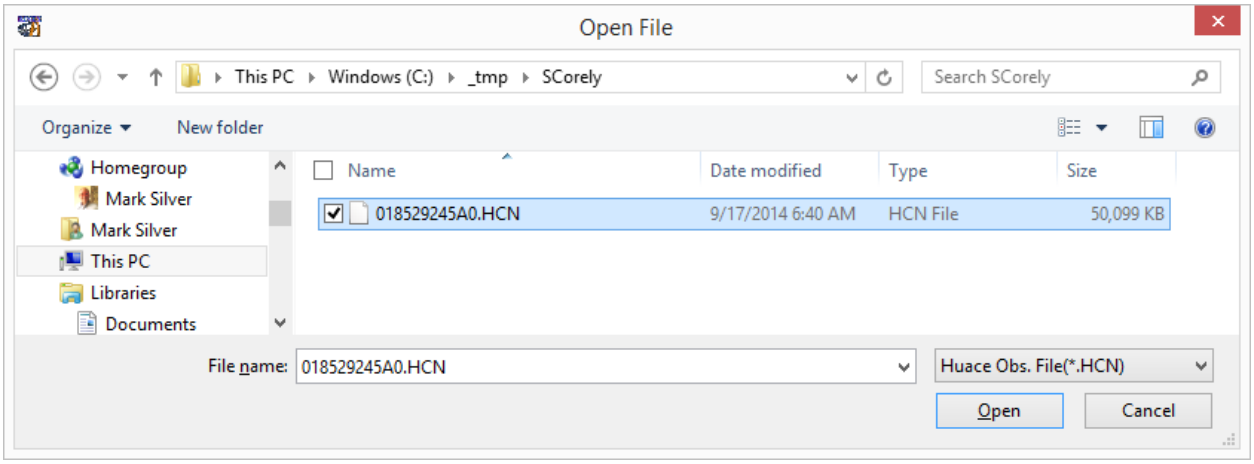
Thesis: It is possible to record very long files with the X90-OPUS receiver. The automatic download file will choke when processing files longer than 48-hours (usually). This document describes how to convert the file and how to manually break the file into daily files for submission to OPUS.

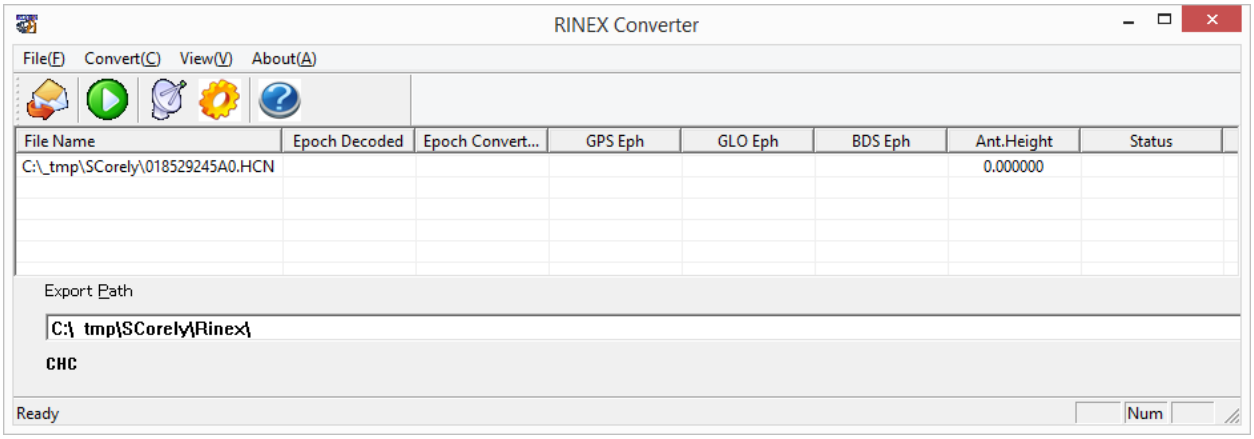
Manually copy HCN file from GPS to a folder:



Run the RINEX Converter, click File: Open and select the file:



Click on Open:



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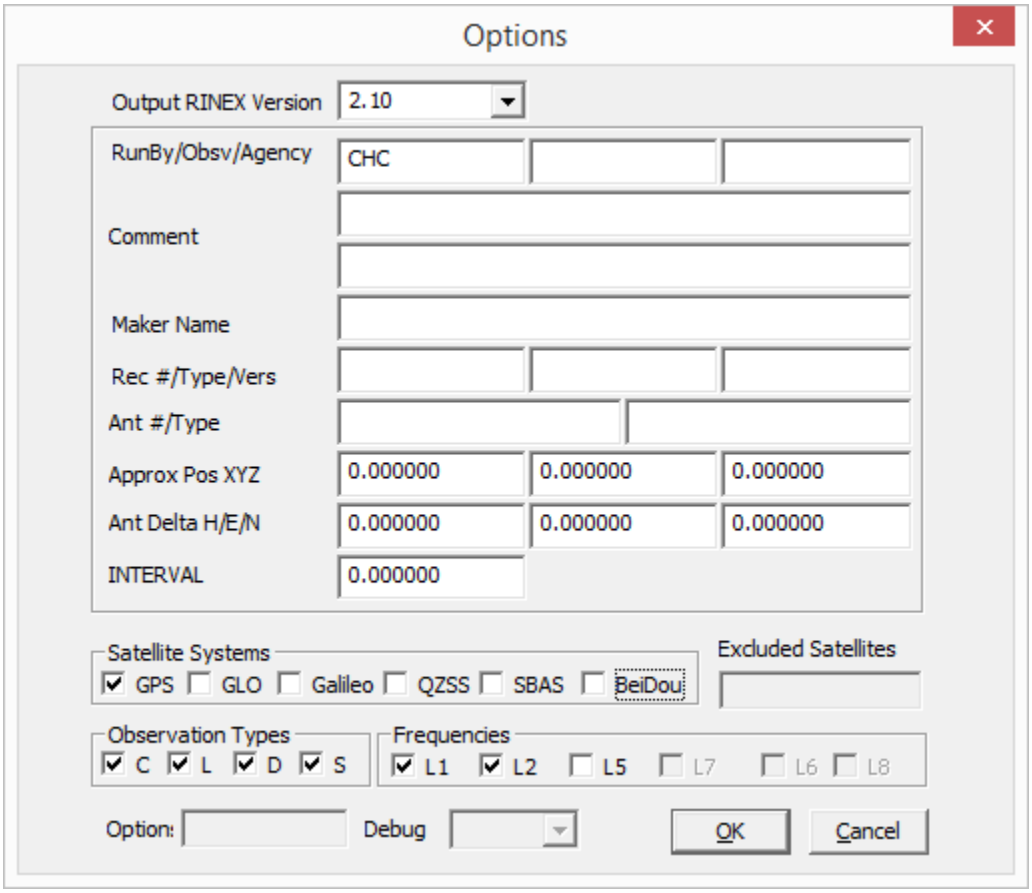
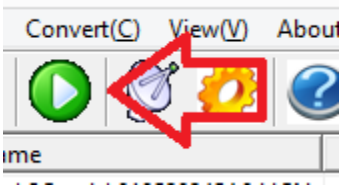
Click the 'Gear' button:

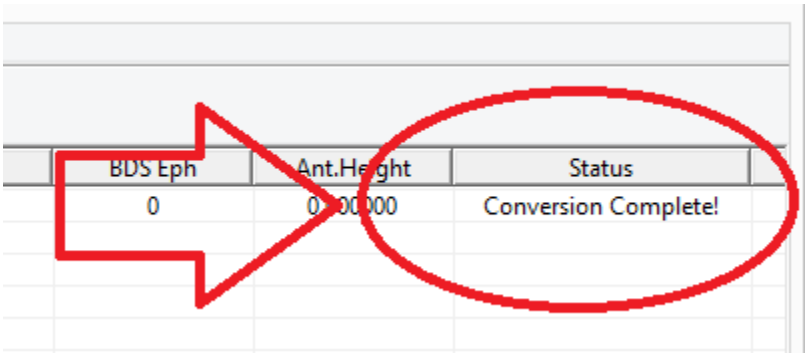


Uncheck 'GLO', 'Galileo' and BeiDou, then click OK.

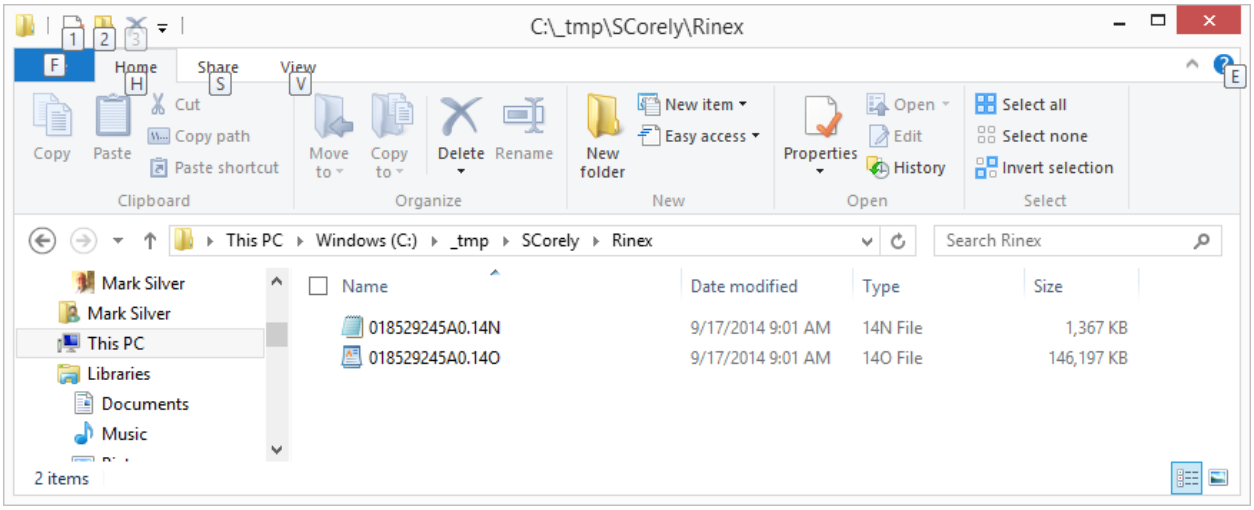
Click the green 'GO' button:



Wait for ‘Conversion Complete’:



Now there will be a RINEX file in the same folder where the input file was. In the RINEX folder, there will be O and N file (Observation and Navigation file):



In this case, the resulting file is mega long (not necessarily BIG, but observations over a long time). Here are the first/last observation times:

```
  2014     9     2    16    17   30.0000000     GPS         TIME OF FIRST OBS
  2014     9    16     8    24    0.0000000     GPS         TIME OF LAST OBS
```

This file spans September 2nd through September 16th. Since the intent is to submit to OPUS, it would be nice to convert to daily files. TEQC’s TBIN command is the way to go.

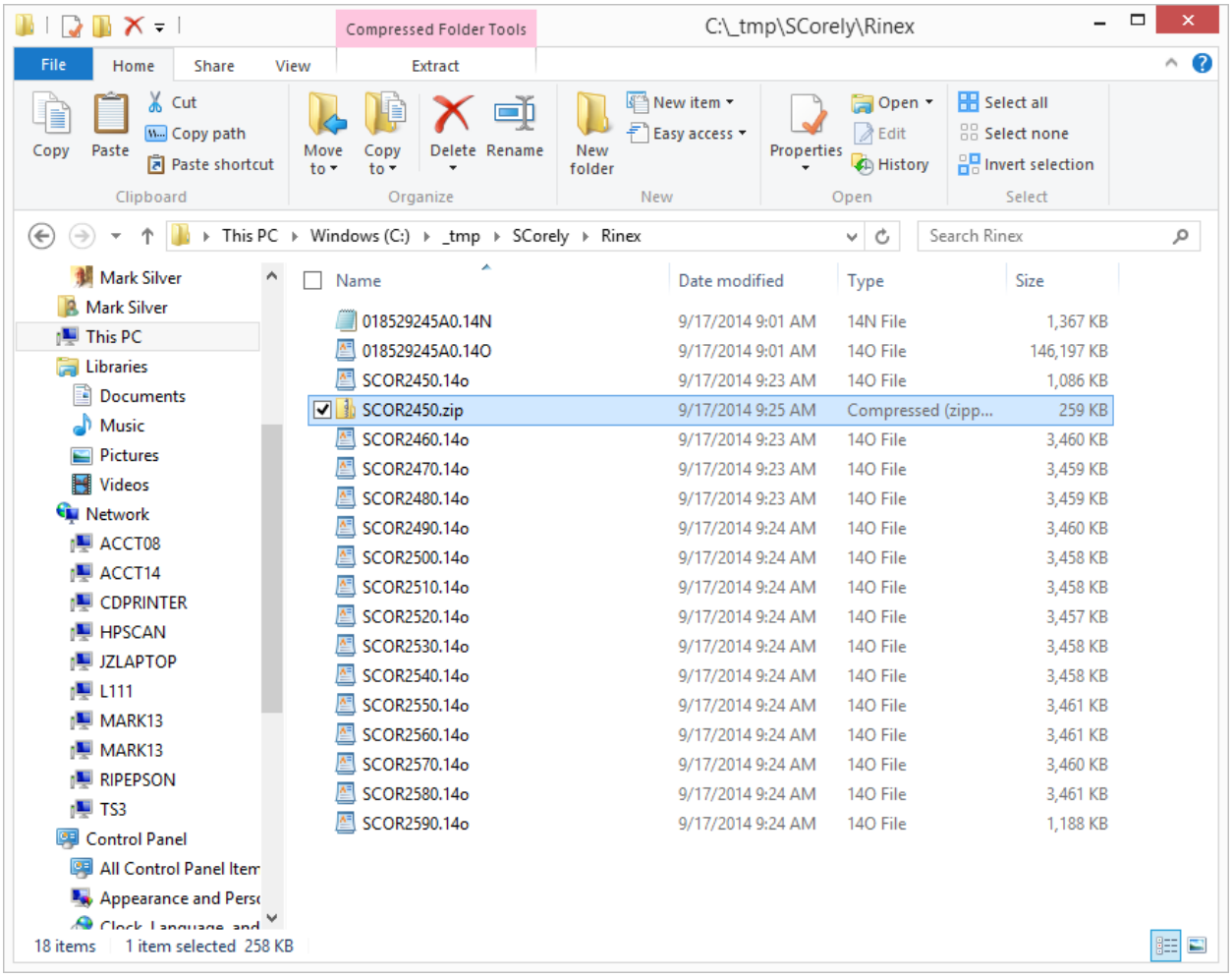
Here is a screenshot of the single command that will break up the LONG file into several 24-hour files AND simultaneously decimate to 30 second interval:

```
C:\_tmp\SCorely\Rinex>teqc -O.dec 30s +obs + -tbin 24h SCOR 018529245A0.14O
teqc:  creating file 'SCOR2450.14o' ...
teqc:  creating file 'SCOR2460.14o' ...
teqc:  creating file 'SCOR2470.14o' ...
teqc:  creating file 'SCOR2480.14o' ...
teqc:  creating file 'SCOR2490.14o' ...
! Error ! 2014 Sep  7 00:00:30.000: poss. incr. of sampling int. OR data gap of 40.000 seconds (min. dt found= 30.000 s)
teqc:  creating file 'SCOR2500.14o' ...
teqc:  creating file 'SCOR2510.14o' ...
teqc:  creating file 'SCOR2520.14o' ...
teqc:  creating file 'SCOR2530.14o' ...
teqc:  creating file 'SCOR2540.14o' ...
teqc:  creating file 'SCOR2550.14o' ...
teqc:  creating file 'SCOR2560.14o' ...
! Error ! 2014 Sep 14 00:00:30.000: poss. incr. of sampling int. OR data gap of 40.000 seconds (min. dt found= 30.000 s)
teqc:  creating file 'SCOR2570.14o' ...
teqc:  creating file 'SCOR2580.14o' ...
teqc:  creating file 'SCOR2590.14o' ...

C:\_tmp\SCorely\Rinex>_
```

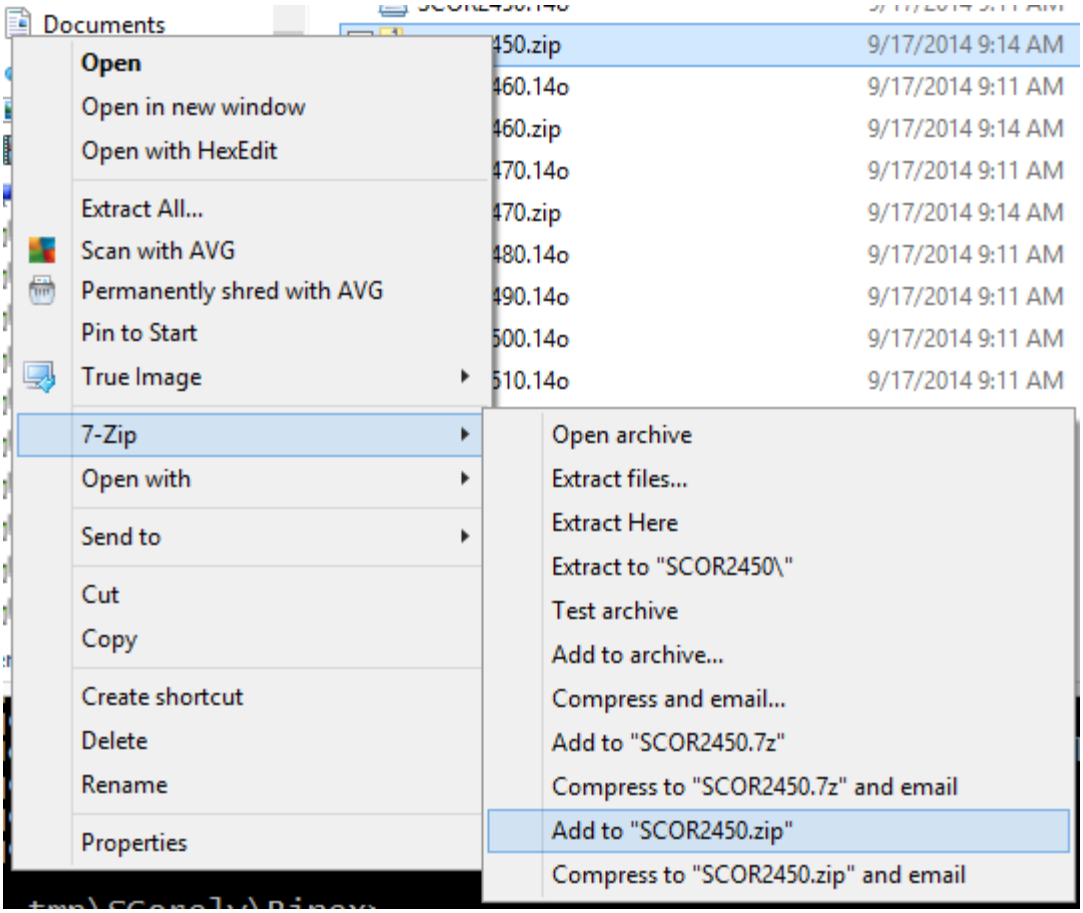

The command is:

```
teqc -O.dec 30s +obs + -tbin 24h SCOR 018529245A0.14O
```

Now there will be 15 files:



I like to zip the observations up before I submit them (to make the upload quicker):



Now you can submit the files to OPUS. Here is a screen shot of submitting a single file:

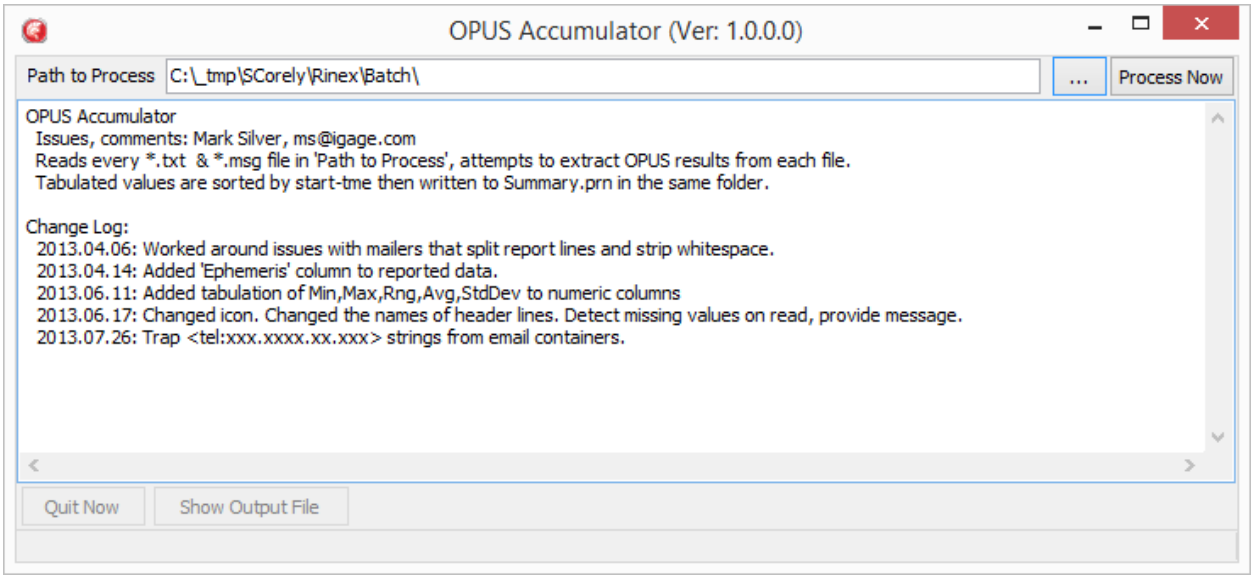
Here is the first few lines of the resulting OPUS-Static Report

```
                        NGS OPUS SOLUTION REPORT
                        ========================

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

      USER: ms.igage@gmail.com                    DATE: September 17, 2014
RINEX FILE: scor245q.14o                          TIME: 15:21:48 UTC


  SOFTWARE: page5  1209.04 master91.pl 022814      START: 2014/09/02  16:17:00
 EPHEMERIS: igr18082.eph [rapid]                    STOP: 2014/09/02  23:59:00
  NAV FILE: brdc2450.14n                       OBS USED: 17777 / 18955    :  94%
  ANT NAME: CHCX90D-OPUS    NONE             # FIXED AMB:    90 /   100   :  90%
```

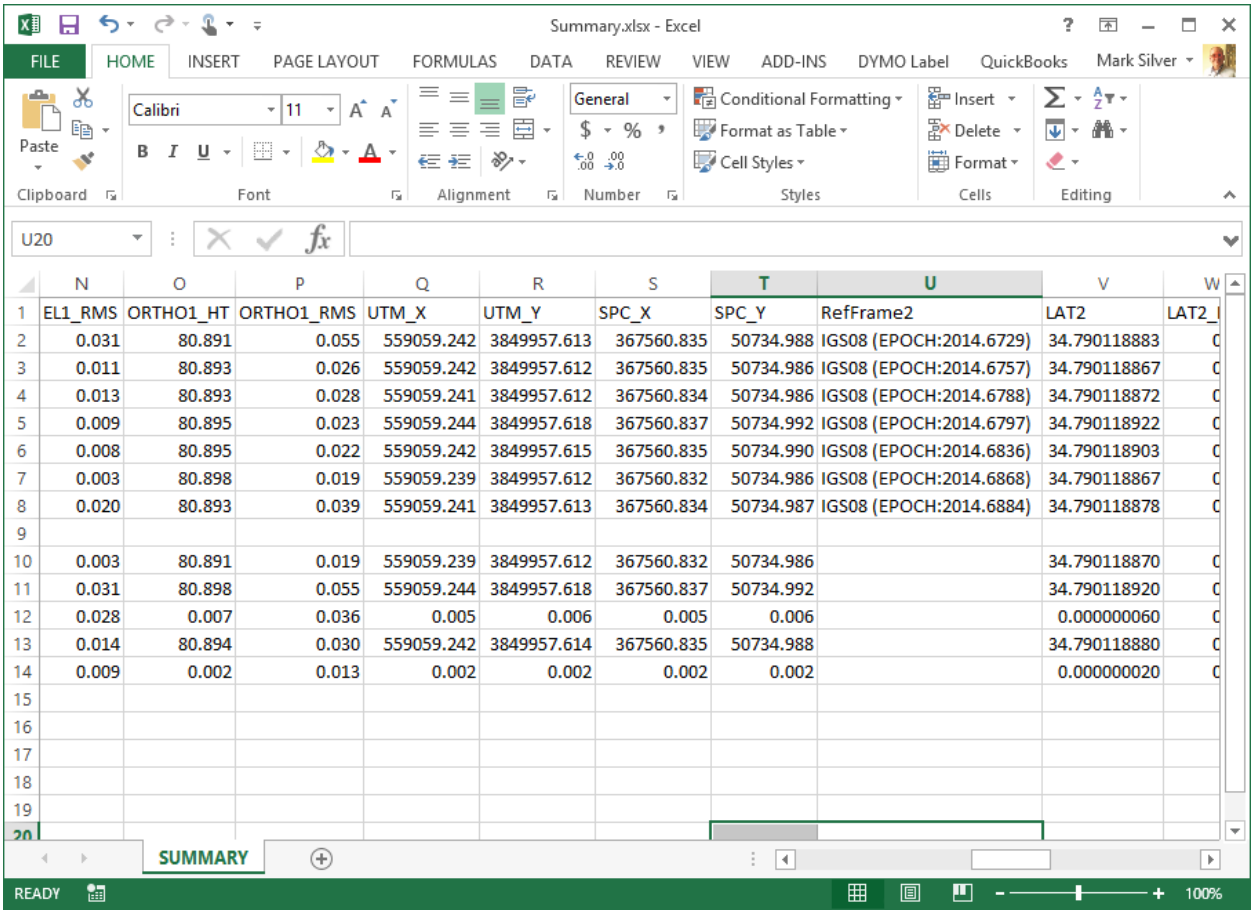
```
ARP HEIGHT: 0.0001                          OVERALL RMS: 0.021(m)


 REF FRAME: NAD_83(2011)(EPOCH:2010.0000)              IGS08 (EPOCH:2014.6708)

         X:      -215420.720(m)   0.017(m)           -215421.518(m)   0.017(m)
         Y:     -5239365.036(m)   0.018(m)          -5239363.605(m)   0.018(m)
         Z:      3618799.696(m)   0.004(m)           3618799.553(m)   0.004(m)

       LAT:   34 47 24.40599      0.008(m)        34 47 24.42805      0.008(m)
     E LON:  267 38 44.03018      0.018(m)       267 38 43.99651      0.018(m)
     W LON:   92 21 15.96982      0.018(m)        92 21 16.00349      0.018(m)
    EL HGT:           54.049(m)   0.017(m)                52.820(m)   0.017(m)
 ORTHO HGT:           80.879(m)   0.034(m) [NAVD88 (Computed using GEOID12A)]

                        UTM COORDINATES    STATE PLANE COORDINATES
                         UTM (Zone 15)         SPC (0301 AR N)
Northing (Y) [meters]     3849957.615           50734.990
Easting (X)  [meters]      559059.243          367560.836
Convergence  [degrees]     0.36835127         -0.20624603
Point Scale                0.99964299          1.00003124
Combined Factor            0.99963451          1.00002276

US NATIONAL GRID DESIGNATOR: 15SWU5905949957(NAD 83)


                              BASE STATIONS USED
PID       DESIGNATION                        LATITUDE    LONGITUDE DISTANCE(m)
DH7101 ARCM CAMDEN CORS ARP                N333232.635 W0925257.803  146721.6
DL7767 P777 ROCKYHILLAR_2008 CORS ARP      N354209.553 W0923243.669  102726.3
DH8992 ARBT BATESVILLE CORS ARP            N354235.528 W0913742.738  121559.6
```

A little known secret, is you could ZIP all of the observation files into one ZIP file and submit them all at once. For an example, I ZIPped the first 7-full-days of observations files into a file called RINEX.ZIP and submitted it as a single submission.

I received back 7 reports, placed them in a folder called Batch and then ran them through the OPUSAccumulator tool:



After choosing the folder with the Microsoft Outlook .MSG files, click on Process Now and then open the resulting summary file in Excel:



	N	O	P	Q	R	S	T	U	V	W
1	EL1_RMS	ORTHO1_HT	ORTHO1_RMS	UTM_X	UTM_Y	SPC_X	SPC_Y	RefFrame2	LAT2	LAT2_I
2	0.031	80.891	0.055	559059.242	3849957.613	367560.835	50734.988	IGS08 (EPOCH:2014.6729)	34.790118883	0
3	0.011	80.893	0.026	559059.242	3849957.612	367560.835	50734.986	IGS08 (EPOCH:2014.6757)	34.790118867	0
4	0.013	80.893	0.028	559059.241	3849957.612	367560.834	50734.986	IGS08 (EPOCH:2014.6788)	34.790118872	0
5	0.009	80.895	0.023	559059.244	3849957.618	367560.837	50734.992	IGS08 (EPOCH:2014.6797)	34.790118922	0
6	0.008	80.895	0.022	559059.242	3849957.615	367560.835	50734.990	IGS08 (EPOCH:2014.6836)	34.790118903	0
7	0.003	80.898	0.019	559059.239	3849957.612	367560.832	50734.986	IGS08 (EPOCH:2014.6868)	34.790118867	0
8	0.020	80.893	0.039	559059.241	3849957.613	367560.834	50734.987	IGS08 (EPOCH:2014.6884)	34.790118878	0
9										
10	0.003	80.891	0.019	559059.239	3849957.612	367560.832	50734.986		34.790118870	0
11	0.031	80.898	0.055	559059.244	3849957.618	367560.837	50734.992		34.790118920	0
12	0.028	0.007	0.036	0.005	0.006	0.005	0.006		0.000000060	0
13	0.014	80.894	0.030	559059.242	3849957.614	367560.835	50734.988		34.790118880	0
14	0.009	0.002	0.013	0.002	0.002	0.002	0.002		0.000000020	0
15										
16										
17										
18										
19										
20										

Amazing!