



NGS OPUS Won't Process my GPS Observation File!

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By: Mark Silver, ms@igage.com

C:\Users\Mark\Documents\CHC\OPUSWontProcess_R001.docx

Thesis:

I collected static data with my (xyz) GPS receiver, just like I always do. It was in a wide open area, but when I submit data it reports that it cannot process the file or the vectors because they are noisy or fewer than 3 useable stations remain.

Answer:

There are a lot of possible answers, but in this case the error message may be correct: "There are no nearby CORS stations WITH data."

Let's look at an example.

First open the observation file and find the 'Time of first obs' record:

```
2017 4 10 14 28 35.0000000 GPS TIME OF FIRST OBS
```

You now know the start time of the file in UTC time (which is GPS time):

14:28 10 April 2017

Skip to the bottom of the file and find the header for the last record:

```
17 4 10 15 47 5.0000000 0 10G03G14G16G22G23G25G26G29G31G32
```

You now know that the end time of the file:

15:47 10 April 2017

And that the file is about 1 hour and 19 minutes long.

Additionally, because the filename for this job is:

012345_17_100_A0.170

I know that the Julian day is 100.

Next browse to https://www.ngs.noaa.gov/CORS_Map/ and zoom into where your job was performed. Here is a sample that matches the file:



The red triangle is the job location. The Blue designators are the three closest CORS sites.

For each of the nearest CORS sites, Click on the CORS site:



Then click on 'Get Site Info':

PAII
INDIANA
Indiana, PA
USA

Site operated by:
PADI

[Coordinates](#)
[SiteLog](#)
[Photographs](#)
[Data Availability](#) ←
[Standard Files](#)
[Custom Files \(UFCORS\)](#)

[Time Series \(short-term\)](#)
[Time Series \(long-term\)](#)

[Google Map all CORS](#)

Enter SiteID
[CORS Home](#)

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Click on 'Data Availability' (and then wait for up to 30 seconds):

PAII
INDIANA
Indiana, PA
USA

Site operated by:
PADI

[Coordinates](#)
[SiteLog](#)
[Photographs](#)
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[Google Map all CORS](#)

Enter SiteID
[CORS Home](#)

National Geodetic Survey - CORS

SiteID: *Calendar Date:
Time Zone: Days Ago:

[Get Data Availability](#)

NOTE: Reset options and click "Get Data Availability" button to view data availability for another time period.

Data Availability Profile for: PAII

■ Data Available ■ Data Unavailable

GPS Date	Time EST	Time UTC	Data Availability
2017-102	19	0	Available
2017-101	20	1	Available
2017-100	21	2	Unavailable
2017-099	22	3	Available
2017-098	23	4	Available
2017-097	0	5	Available
2017-096	1	6	Available

Notice that there is no data on Julian day 100, no data at all. But we are most concerned about the time from 14:00 to 16:00 where there is no data. (The gray bar indicates that there is no data. Blue bars are data available.)

Now check P817:

P817
STCLAIRSVIPA2013
 St. Clairsville, PA
 USA

Site operated by:
[UNAVP](#)

- [Coordinates](#)
- [SiteLog](#)
- [Photographs](#)
- [Data Availability](#)
- [Standard Files](#)
- [Custom Files \(UFCORS\)](#)

- [Time Series \(short-term\)](#)
- [Time Series \(long-term\)](#)

[Google Map all CORS](#)

Enter SiteID

[CORS Home](#)

National Geodetic Survey - CORS

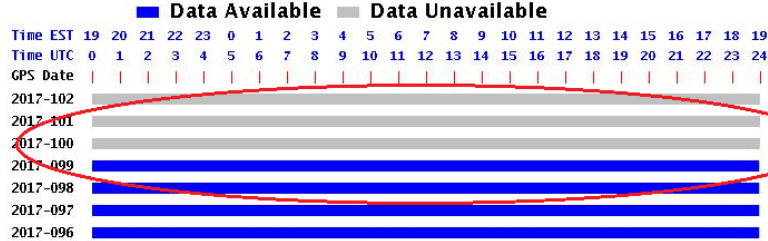


SiteID: GPS Start Date: Time Zone: Days Ago:

[Get Data Availability](#)

NOTE: Reset options and click "Get Data Availability" button to view data availability for another time period.

Data Availability Profile for: P817



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Notice that there is no data on Julian day 100.

Now check PAWG:

Site operated by:
[PADT](#)

[Coordinates](#)

- [SiteLog](#)
- [Photographs](#)
- [Data Availability](#)
- [Standard Files](#)
- [Custom Files \(UFCORS\)](#)

- [Time Series \(short-term\)](#)
- [Time Series \(long-term\)](#)

[Google Map all CORS](#)

Enter SiteID

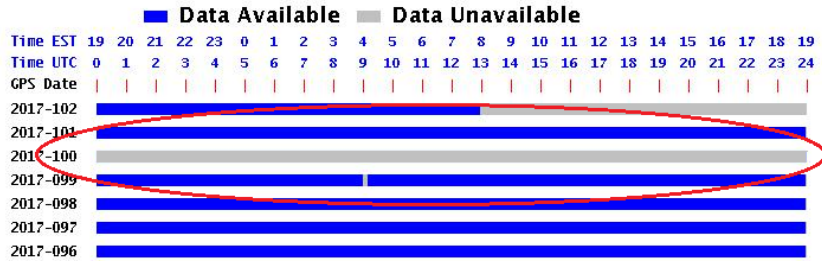
[CORS Home](#)

SiteID: GPS Start Date: Time Zone: Days Ago:

[Get Data Availability](#)

NOTE: Reset options and click "Get Data Availability" button to view data availability for another time period.

Data Availability Profile for: PAWG



Again there is no data for Julian day 100.

If you continued working your way out from the site through CORS stations, you will find that Julian day 100 has no data from nearly EVERY nearby CORS sites. So the error message 'fewer than 3 useable...' stations is indeed correct.

However, at about 10:00 am EST on July 12 (JDay 102) the NGS started to 're-ingest' data from all of the missing sites. So simply resubmitting occupations to OPUS resulted in jobs which processed successfully after a two day delay.

In this case, missing data on the NGS is fully to blame for the inability to process the OPUS-RS jobs.

But what if the occupations had been longer than 2 hours? OPUS-Static will reach out to distant CORS stations as needed. Some data had been successfully



ingested around the country on JDay 100. So OPUS-Static occupations typically were processed, albeit with very long baselines.

This impacts the reported RMS values on the resulting OPUS reports and it can cause a host of other reported errors. The most common is 'the quality of your data is too noisy'. Of course, waiting for data to become available results in shorted baselines and more acceptable results.