



Well with and introduction like that I better have a very good presentation.

Contents

- Registration
- Real-Time Products
- Downloading Rinex 3 files
- Downloading Rinex 2 files
- Creating and downloading Virtual Rinex files
- Using the Computation Service
- Other Services
- Direction of the FPRN

Here are the items I hope to discuss before the end of our time together.



First lets go over the registration steps for the FPRN.

Start by navigating to our home page



The FPRN Home page can be located here:

https://www.fdot.gov/geospatial/fprn.shtm



Begin by reviewing the Registration Steps

Please review <u>ALL</u> pages in the instructions paying particular attention to the required Demographic Groups

| DEMOGRAPHIC GROUP NAME | DEFINITION |
|------------------------|--|
| Academic | Colleges and Universities |
| Agriculture | Agriculture (Farms, Golf Course, etc) |
| City | City Government Agencies and Departments |
| Construction | Contruction related Companies |
| County | County Government Agencies and Departments |
| Federal | Federal Government Agencies and Departments |
| Mapping | Mapping Organizations (Engineering, GIS & Surveying Companies) |
| Mining | Mining Operations |
| Private | Private accounts (for personal use by individuals) |
| State | State Government Agencies and Departments |
| Utilities | Utility Companies |
| Vehicles | Vehicular Navigation (autonomous vehicles) |
| Vendors | Mapping Equipment Vendors |

The Demographic Groups allow us to gather usage data for reporting purposes.



Next let's click on the New User Registration link

| Language: 🔚 English ~ Need an acc | ount? CREATE ACCOUNT |
|-----------------------------------|-----------------------------------|
| Login | |
| User name | |
| Password | |
| Forgot password? | |
| Login | |
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This will take you the User Portal Login Page

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|------------------------|---|-----------------------------|
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Click on the Create Account button

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| | Credentials | | 1 | |
| | User name* | | | |
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| | Mobile phone* | | | |
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| | TOV76J 0 Enter the text from the image above* | | ſ | |
| | Read Privacy Notice | | | |
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Once on the new user registration page you should begin by picking a user name and password.

As a note, if you are creating multiple account, each rover requires its own account, you can use the same password but you will need a unique user name.

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| | Last name* | | | |
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Fill out the rest of the required information.

Make sure your email is spelled correctly because it is used in following steps of the registration process

Remembering to associated your company to one of the Demographic Groups.

Also, the mobile phone should be for the operator of the equipment. From time to time if we notice problems with your Rover login, time permitting, we will call to try and resolve the issue.

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Finally, click the Sign Up button

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|------------------------|---|-----------------------------|
| | Registration completed. × ✓ Success Your account is created and a confirmation E-mail has been sent to you. Please follow the instructions given in the confirmation E-mail to activate your account. | |
| | Login User name [Password [Forgot password? [Remember me | |
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You will be brought back to the User Portal Login Page.

You should get the following message

"Registration Completed Your account is created and a confirmation E-mail has been sent to you. Please follow the instructions given in the confirmation E-mail to activate your account."

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Navigate to your E-mail

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Navigate to your E-mail

You should notice an E-mail from FPRN.accounts@myflorida.com that looks something like this.

Click on the link in the E-mail to verify your account with the FPRN.



You will be sent to a web page that says your registration is complete.

| FDOT | Language: 🔠 English 🗸 Need an ac | count? CREATE ACCOUNT |
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Navigate back to the Customer Portal

https://www.myfloridagps.com/sbc

Login using your new Username and Password

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Go "shopping" to pick the services you wish to use with this account.

(CLICK)

If the account will be strictly used in the field you may want to limit the account to just NAD $8_3\,Corrections$

(CLICK)

If an Office account you could pick Rinex 3, Coordinate Computations, & V Rinex.

(CLICK)

Or, you can pick everything

| | | English V | = : | ç u | *: |
|--|--|------------------|--------|---------|--------|
| Ron Hanson | Home / Shop | | | | |
| Contact Contact Dynamic Map FPRN Products FFPRN Training FPRN News C Emailer | NAD83 Corrections NAD83 Gorrections Subscription Period: Unlimited Consumption Limit: Flatrate Working Area: Unlimited Article No: | | | | |
| | Subscribe Now Completes the transaction. The article price will be invoiced. | | Cancel | | |
| | FPRN Home Rinex 2 FTP Goggle Earth Overlay Florida Custom Geoid Data Sheets & Superseded Coor | dinates Contact | Cookie | es Ab | ou |

You will have to accept the Terms of Use and "Subscribe now" for each product you wish to use.



You will see the subscription information for each product on the next page

| RM Handon Home / Account Details / Subscriptions Image: Status Image: Subscriptions - Sample Image: Subscriptions - Sample Image: Subscriptions - Sample Image: Subscription Content MADB3 Corrections Image: Subscription Period MADB3 Corrections Image: Subscription Period Subscription Period Subscription Period Subscriptio | FDOT | | | 🔠 English 🗸 🚍 🔀 🕒 |
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| Subscription Subscription dates Subscription Subscrip | 🗑 Shop 🔶 | Subscriptions - Sample | | |
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Log out

Or

Continue Shopping



Once you have completed "shopping" and logged out, your account will now be complete.

(CLICK)

The FPRN offers numerous Real-Time Products in each of Four different languages

| | .121.3.200 |
|--|--|
| North Ameri Single Baseline (A | can Datum 83 (NAD83) Automatic Nearest Stat |
| Po | ort 10000 |
| Requires NMEA string to | be broadcast at least every 30 |
| | |
| Language | Region |
| Language RTCM2 | Region RTCM2_Near |
| Language RTCM2 CRM / CRM+ | Region RTCM2_Near CRMP_Near |
| Language RTCM2 CRM / CRM+ RTCM3 | Region RTCM2_Near CRMP_Near RTCM3_Near |

The IP address for all Real-time transmissions from the FPRN is 40.121.5.206

The most popular product is Automatic Nearest.

This product transmits single baseline corrections from the closest FPRN station.

In order for the software to determine the closest station it requires your location. This information is transmitted via the NMEA string. Because of mobile work products the system requires the NMEA string to be updated at least every 30 seconds.

All of the Automatic Nearest products are offered on port 10000

| 40 North Am | 40.121.5.206 North American Datum 83 (NAD83) Single Baseline RTCM 2.3 | | |
|----------------|---|--|--|
| Port | Region | | |
| 23000 | Statewide | | |
| 23100 | District 1 | | |
| 23200 | District 2 | | |
| 23300 | District 3 | | |
| 23400 | District 4 | | |
| 23500 | District 5 | | |
| 23600 | District 6 | | |
| 23700 | District 7 | | |

The RTCM2.3 language is broadcast on the following ports for single baseline solutions

| 4 North Am | 40.121.5.206 North American Datum 83 (NAD83) Single Baseline CMR / CMR+ | | | |
|---------------|--|--|--|--|
| Port | Region | | | |
| 25000 | Statewide | | | |
| 25100 | District 1 | | | |
| 25200 | District 2 | | | |
| 25300 | District 3 | | | |
| 25400 | District 4 | | | |
| 25500 | District 5 | | | |
| 25600 | District 6 | | | |
| 25700 | District 7 | | | |
| | 4 | | | |

The CMR / CMR+ language is broadcast on the following ports for single baseline solutions

| 4(North Am | 0.121.5.206 nerican Datum 83 (NAD83) Single Baseline RTCM 3.1 |
|----------------|---|
| Port | Region |
| 31000 | Statewide |
| 31100 | District 1 |
| 31200 | District 2 |
| 31300 | District 3 |
| 31400 | District 4 |
| 31500 | District 5 |
| 31600 | District 6 |
| 31700 | District 7 |

The RTCM $_{3.1}$ language is broadcast on the following ports for single baseline solutions

| 40 North Ame RTC |).121.5.206 erican Datum 83 (NAD83) Single Baseline CM 3.1 MSM4 |
|------------------------|--|
| Port | Region |
| 40000 | Statewide |
| 40100 | District 1 |
| 40200 | District 2 |
| 40300 | District 3 |
| 40400 | District 4 |
| 40500 | District 5 |
| 40600 | District 6 |
| 40700 | District 7 |

The RTCM 3.1 MSM4 language is broadcast on the following ports for single baseline solutions

| | N (Requires | 40.121.5.200 Iorth American Datum 83 (NAD83) Network Solutions Port 10000 NMEA string to be broadcast at least every 30 seconds) |
|---------------|-----------------------|---|
| Language | Product | Description |
| RTCM 2.3 | RTCM2_FKP | RTCM 2.3 Flächen Korrektur Parameter (Network Solution) |
| | RTCM2_IMAX | RTCM 2.3 Individualized Master Auxiliary Concept (Network Solution) |
| | RTCM2_VRS | RTCM 2.3 Virtual Reference Station (Network Solution) |
| CMR / CMR+ | CMRP_IMAX | CMR / CMR + Individualized Master Auxiliary Concept (Network Solution) |
| | CMRP_VRS | CMR / CMR + Virtual Reference Station (Network Solution) |
| RTCM 3.1 | RTCM3_IMAX | RTCM 3.1 Individualized Master Auxiliary Concept (Network Solution) |
| | RTCM3_MAX | RTCM 3.1 Master Auxiliary Concept (Network Solution) |
| | RTCM3_VRS | RTCM 3.1 Virtual Reference Station (Network Solution) |
| RTCM 3.3 MSM4 | MSM4_IMAX | RTCM 3.3 MSM4 Individualized Master Auxiliary Concept (Network Solution |
| - | MSM4 VRS | RTCM 3.3 MSM4 Virtual Reference Station (Network Solution) |

All network solutions (including Automatic Nearest) (discussed earlier) are broadcast on port 10000

In order for the software to determine the stations required to develop your network it requires your location. This information is transmitted via the NMEA string. Because of mobile work products the system requires the NMEA string to be updated at least every 30 seconds.



Let's talk about downloading Rinex 3 data

Navigate to the Customer Portal

| FDOT | Lan | guage: Ⅲ English > Need an account? CREATE ACCOUNT |
|------------------------|---------------------------------|--|
| | Login | |
| | User name Sample | |
| | Password | |
| | Forgot password? Remember me | |
| | | Login |
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| Spider Business Center | | EPRN Home Cookies About |

Login using your User Name and Password



Select Post Processing from the left hand menu



Select Rinex Data



The Rinex 3 application will load

| – 📑 Results | Start Time: 2019-06-20 8:00 🗮 to 2019-06-20 10:00 | | 02:00 h | | |
|-----------------------------|---|---|---|----------------------|--|
| Account Details 🛛 🖽 | (P < 20 June 2019 > Virtual RINEX | Se | elected: None Search Sites | Juoning | |
| Contact | 8:00 8:15 8:30 8:45 O Demo | Merge Files | Observation rate 1 sec | | |
| Dynamic Map PRN Products | | AL90 AMbile | TEIAX1202GG EICA GRX1200PRO EICA GRX EICA GRX | 8 Files (99.76%) | |
| FPRN Training | | AL92 Bay Minette | Ţ LEIAX1202GG 달 LEICA GRX1200PRO | 8 Files (99.14%) | |
| Emailer | | Correct Day (Correct) Blach Correct Correct Day (Correct) Blach Correct Corre | | 8 Files (100.00%) | |
| | | ALDO Dothan K GPS+GLO | 후 LEIAX1202GG 뎧 LEICA GRX1200GGPRO | 8 Files (99.99%) | |
| | C | ALEB | P LEIAX1202GG EICA GRX1200PRO | 8 Files (99.99%) | |
| | | ALFO | P LEIAX1202GG EICA GRX1200PRO | 8 Files (99.99%) | |
| | | ALNB ALNB ANB ANB ANB ASSERT | 〒 LEIAX1202GG 달 LEICA GRX1200PRO | 8 Files (99.90%) | |
| | Lat: 26° 28' 43.507" N Lon: 84° 02' 15.700" W | Key West 0 100 km ANDE | 👎 LEIAT504 LEIS | | |

Start by clicking on the Calendar icon

(CLICK)

Select the beginning date

(CLICK)

Select the beginning hour

(Click)

Select the closest starting minute



Slide the bar for the duration of the file needed


Assign a Project Name



Pick the site or sites you need either on the map or on the list at the right.

Sites with 100% available data are shown in green

Sites with partial data are shown in yellow

Sites with no data are shown in red



The sites you pick are shown with "push pin"



They are also automatically moved to the top of the list and shown in alphabetical order.



You can also search the sites



Once you have finished selecting the sites needed, you can pick the epoch interval



And whether or not to merge the site files into one each.



Click on the Submit button to start processing your request



A confirmation screen will appear, click the confirm button to continue.

| FDOT | | | | English -> 🗮 🔀 🕩 |
|-----------------|---|---|---|-----------------------------|
| Ron Hanson | Home / Post Processing / Results | | | |
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| | Results | | | |
| 🍰 RINEX Data | On this page, all results related to any SBC post-processin | g service are displayed, divided by category. | | |
| - 🔅 Computation | RINEX Data | Virtual RINEX Data | Coordinate Computations | |
| | 1. Requested at 2019-07-17 10:22 | Duration: 04:30 h, 4 Files | 02 | |
| Account Details | Project: sample Sites: LKCY,XCTY,OCLA (4) | Observation Rate: 1 sec Data Completeness: 100% | | •• •• |
| 🛛 Contact | Requested Start Time: 2019-06-20 08:00 | Epochs: 64800 | | |
| 🖾 Dynamic Map | All RINEX results older than 2019-06-17 are automatically ren | noved. | | |
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You will be redirected to the results page

The results page shows any request you have made in the last 30 days, whether it be Rinex, Virtual Rinex or Computations

| FUUT | | | English ~ | ≡ % ⊛ | | |
|-------------------------------|--|--|--|----------------|--|--|
| Ron Hanson | Home / Post Processing / Results | | | | | |
| 👾 Shop 🛢 :Post: Processing | Results | | | | | |
| 🏩 RINEX Data | BINEY Data | On this page, all results related to any SBC post-processing service are displayed, divided by category. | | | | |
| Computation | RINEX Data | VILUAI RIVEX Data | condinate computations | | | |
| Account Details | 1. Requested at 2019-07-17 10:22 Project: sample | Duration: 00:00 h, 4 Files Observation Rate: 1 sec | Download All | | | |
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| | All RINEX results older than 2019-06-17 are automatically | y removed. | | | | |
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Once the request has been finalized, the download all button will appear.



Clicking will cause the confirmation window to appear, click yes to continue.

The files will be downloaded to your default download directory established in your browser.



Once download has completed, you can log off the site if you choose.

Rinex 2 Files



Starting on the Customer Portal Home screen, click on the Rinex 2 FTP link on the bottom of the screen.

| Index of /Rin | nex2/ | | | |
|--|--|--|--|--|
| [parent directory] Name Size Date Mo 01/ 4/11/19, 1 24/ 4/11/19, 1 | lodified 11:27:00 AM 11:27:00 AM | | | |
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| | | | | |

Select either 1 hour file or 24 hour file

1 Hour files are 1 second epochs

24 Hour files are 30 second epochs



Select the station desired

| Index of /Rinex2/(|)1/DLND/ | | | |
|---|----------|--|--|--|
| 🎦 [parent directory] | | | | |
| Name Size Date Modified 2019/ 6/30/19, 5:03:00 F | PM | | | |
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Select year



Select month



Select day

Index of /Rinex2/01/DLND/2019/06/20/



Select file

Remembering that there is a time shift

| 覧 [parent directory] | | | | |
|----------------------------|---------|----------------------|------|-------|
| Name | Size | Date Modified | | |
| dlnd171a.rnx.zip | 2.0 MB | 6/19/19, 5:02:00 PM | | |
| dlnd171b.mx.zip | 2.3 MB | 6/19/19, 6:02:00 PM | | |
| dlnd171c.rnx.zip | 2.5 MB | 6/19/19, 7:02:00 PM | | |
| dlnd171d.rnx.zip | 2.7 MB | 6/19/19, 8:02:00 PM | | |
| dind171e.rnx.zip | 3.1 MB | 6/19/19, 9:03:00 PM | | |
| dlnd171f.rnx.zip | 3.0 MB | 6/19/19, 10:02:00 PM | | |
| dind171g.rnx.zip | 2.9 MB | 6/19/19, 11:02:00 PM | | |
| dind1/1h.mx.zip | 2.7 MB | 6/20/19, 12:02:00 AM | | |
| dind1/11.mx.zip | 2.8 MB | 6/20/19, 1:03:00 AM | | |
| dind1/1j.mx.zip | 32.3 KB | 6/20/19, 1:08:00 AM | | |
| dind1/1j01.mx.zip | 18.7 KB | 6/20/19, 1:08:00 AM | | |
| dind1/1j04.mx.zip | 2.5 MB | 6/20/19, 2:02:00 AM | | |
| dind1/1k.mx.zip | 2.8 MB | 6/20/19, 5:02:00 AM | | |
| diad1711.mx.zip | 3.0 MB | 6/20/19, 4:03:00 AM | | |
| diad171mmx.zip | 3.1 MB | 6/20/19, 5:03:00 AM | | |
| dind1710 my zip | 3.0 MB | 6/20/19 7:03:00 AM | | |
| dind1710 mx zip | 2.7 MB | 6/20/19 8:03:00 AM | | |
| dind1710 mx zin | 3.0 MB | 6/20/19 9:02:00 AM | | |
| dind171r mx zin | 2.9 MB | 6/20/19 10:03:00 AM | | |
| dind171s mx zin | 2.8 MB | 6/20/19 11:02:00 AM | | |
| dind171t mx zin | 2.9 MB | 6/20/19 12:03:00 PM | | |
| dind171u.mx.zip | 2.9 MB | 6/20/19, 1:03:00 PM | | |
| dind171v mx zip | 2.6 MB | 6/20/19 2:02:00 PM | | |
| dlnd171w.rnx.zip | 2.5 MB | 6/20/19, 3:02:00 PM | | |
| dind171x.rnx.zip | 2.2 MB | 6/20/19, 4:07:00 PM | | |
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| | 5 | | | |
| dind171h.rnx.zip | ^ | | Show | / all |

The file will automatically download to your default directory

Repeat as necessary

(CLICK)

10 Minute Break



Now let talk about Virtual Rinex

Virtual Rinex allows you to create a network adjusted Rinex file



Starting at the Customer Portal home screen

Click on Post Processing



Click on RINEX Data



Click on the calendar icon to begin selecting your date



Select the day



The starting hour



And starting minute



Slide the duration bar back and forth to pick the length of your file



Enter a Project Name

| Computation Results | supported. A maximum of 960 files can be downloaded or Start Time: 2019-06-20 8:00 🗎 to 2019-06-20 14:00 — | (if applicable) merged in a single request. | inits. costornization or t | 06 | :00 h | |
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| ontact | + 0 0 00 | | Merge Files | Observation rate 1 sec | | |
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| | | | ✔ ALFO ✔ Foley ✗ GPS+GLO | TEIAX1202GG EICA GRX1200PRO EICA GRX1200PRO | 24 Files (99.97%) | |
| | | | 4 ALNB 4 New Brockton ★ GPS+GLO | ₽ LEIAX1202GG ₽ LEICA GRX1200PRO | 24 Files (99.81%) | |
| | Lat: 27° 25' 25.254" N Lon: 86° 11' 44.558" W | Key West O 100 km | | | | |

Select the Virtual RINEX checkbox



A location pin will appear on the map



You can drag the pin around and using your mouse wheel zoom in and out to finalize your position.

Also, you can type the latitude and longitude location in the are on the right of the screen.



Assign a marker name



And a marker number


Once satisfied with the location and name click the submit button



A confirmation window will appear

Click confirm to continue



You will be taken to the results page.

When the processing of your file is complete the download button will appear.

Click the download button to receive your file



Once the download process starts you will see your file name in the download area



The computation Service is our next topic



Once again, starting at the Customer Portal Home screen

Click on Post Processing in the left menu bar



Click on Computation



The Computation application will open



Start off by giving the project a name

| | | | | | | 📰 Eng | glish 🗸 😑 🔀 🕩 |
|-----------------------------|--|--|---|---|--|---|-----------------|
| Ron Hanson | Home / Post Processing / Computatio | n | | | | | |
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Next, click on the Add Rover Data button to begin selecting observation file(s)

| Ron Hanson | Home / | Post Processing / Compu | itation | | | | | | |
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| Account Details | E Sharp | uar 🧧 F2F Test 🖈 | 21-61500.19o | 6/5/2019 1:19 PM | 190 File | 3,843 KB | | | |
| Account Details | - + | 📃 OneDrive - Fl 🖈 | 📇 21-61501.19g | 6/5/2019 1:19 PM | 19G File | 10 KB | | | |
| Contact | Ar - | Pictures 📌 | 21-61501.19 | 6/5/2019 1:19 PM | 19L File | 75 KB | | | |
| | 1CAL | 🗌 AutoCad 🛛 🖈 | 21-61501.19n | 6/5/2019 1:19 PM | 19N File | 23 KB | | | |
| Dynamic Map | | This PC 🖈 | 21-61501.190 | 6/5/2019 1:19 PM | 190 File | 2,671 KB | | | |
| FPRN Products | Waco | 2019 - The New | 21-01040.19g | 6/5/2019 1:19 PM | 19G FILE | 9 KB | | | |
| - HINA HOODELS | 1 | Documents | 21-61540.19n | 6/5/2019 1:19 PM | 19N File | 31 KB | | | |
| FPRN Training | Rock | FPRN - Network | A 21-61540.19o | 6/5/2019 1:19 PM | 190 File | 2,400 KB | | | |
| | | Geomatics | 7111011.zip | 6/6/2019 3:11 PM | Compressed (zip | p 34,542 KB | | | |
| 1 FPRN News | | | 71111480.19g | 6/5/2019 1:19 PM | 19G File | 12 KB | | | |
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An explorer window will appear allowing you to browse to your data.

Select the file or files you wish to use and click the open button.

| | | | | | | | E COE | |
|--|--|---|--|--|--|--|---|--------------------|
| Ron Hanson | Home / Post Processing / | Computation | | | | | | |
| ₩ Shop ■ Post Processing 1 | Computation | | | | | | DATA AVAII Period: 30 D | ABILITY 70.33 % |
| - 📩 RINEX Data | This service allows to trig upload size is 150 mb. Pr | ger GNSS coordinate comp ocessing with the Virtual R | outations. Based on uplo INEX option enabled will | aded rover files, pre use virtual reference | cise coordinates will be e stations placed at a c | e computed and delivered in the listance of about 50cm from rove | selected target coordinate sys r location. | tem. Maximum |
| - 📑 Results | sample | Add Rover Data | Use Virtual RINEX | Target System: WG | 584 (Default) 🔹 | Selected: 2 M | Marker(s), 2 File(s) (3.76 MB) | Submit |
| Account Details Ontact Dynamic Map | | Gadsden - Anarta | \sim | Florence o SOUTH CAROLINA | Wilmington | 71111480.190 3.24 MB ✓ Static: T LEIGS15 NONE ELEICA GS15 0 2019-05-28 13:42:20 (GP5) 0 2019-05-28 09:42:02 (Local) | | 011H1 |
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| ⊇ Emailer | | POB- | | Benc Do Do Poces Ration | Marsh Harbour O | G 2010-12-13 13:03-42 (008) | | |

At this point the system will validate your data.

(CLICK)

If your data is good it will be indicated by a green checkmark

(CLICK)

If there is a problem a yellow or red exclamation will be shown



You can remove data from the project by simply clicking on the appropriate trashcan

(CLICK)



(CLICK)

In the Computation Application you can pan & zoom around the map just like in the Rinex 3 Data application

You can also switch between map and satellite view.

You can also see information about your data file submitted.

Such as the data type, Antenna type, and start time in local and GMT.

The point name is displayed in the far right area



From here you should pick your output Coordinate datum



You can see that there are several option available including State Plane, UTM, and WGS84.

We also offer elevations using Geoid 12B and the Florida Custom Geoid (FPRN16)



For the purpose of this presentation I'll use Florida North NAD 83 2011 epoch 2010 and The Florida Custom Geoid FPRN16.

All coordinates are output in meters so you will have to do any unit conversions yourself.



Once you are finished submitting data and have picked your output coordinate system, click the Submit button.



A confirmation screen will appear.

Click confirm to continue.

| | Home / Post Processing | g / Results | | | | | | |
|---------------------|--|--|---|--|---|---------------------|-------------------------|-------------|
| | E Results | | | | | | | |
| INEX Data | On this page, all result | ts related to any SBC po RINEX Data | ost-processing service are disp | layed, divided by category. Virtual RINEX Data | | Coordinate Com | putations | |
| unt Details 🛛 🖽 | 4. Processed at 2019 Project: Empty | -07-19 11:22:07 | 1 File(s), 1 Point(s) Use Virtual RINEX: No | Target Sy | rstem: FL N NAD83 2011 FPRN16 | ~ | | |
| act | Show File Details | | | | | | | Full Report |
| mic Map Products | Point | Observatio | on Time | Local Grid (E,N,h,H) FL N NAD83 2011 FPRN16 | WGS84 Geodetic | | Quality | |
| Training News | U737-D | 2019-05-16 09: | 09:42, 30 min | 628949.4425 m ½ 0.0029 m 152170.5296 m ½ 0.0016 m - 12.0698 m | 30° 22' 20.7867" N ½ 0.00 84° 11' 55.7456" W ½ 0.00 -15.6372 m ½ 0.0142 r | 29 m 116 m 11 | 0.0146 m Phase Fixed | <u>A</u> |
| er G | 3. Processed at 2019 | -07-19 <mark>10:50:38</mark> | 6 File(s), 0 Point(s) | Target Sy | rstem: FL N NAD83 2011 FPRN16 | A | | • • |
| | 2. Processed at 2019 Project: sample | -07-19 10:34:01 | 14 File(s), 0 Point(s) Use Virtual RINEX: No | Target Sy | rstem: FL N NAD83 2011 FPRN16 | A | | • |
| | 1. Processed at 2019 Project: sample | -07-19 09:43:18 | 1 File(s), 0 Point(s) Use Virtual RINEX: No | Target Sy | rstem: FL N NAD83 2011 FPRN16 | A | | • |
| | All Computation result | s older than 2019-06-19 | are automatically removed. | | | | | |

You will be taken to the results page.

| Ron Hanson | | Home / Post Process | sing / Results | | | | | | | |
|---------------------------|-----|--|--------------------------------|---|--|---------------------|---|----------------|-------------------------|------------|
| 👾 Shop | e i | Results | | | | | | | | |
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| Contact | | Show File Details | | | | | | | F | ull Report |
| Dynamic Map FPRN Products | | Point | Observatio | in Time | Local Grid (E,N,h,H) FL N NAD83 2011 FPRN16 | | WG584 Geodetic | | uality | |
| FPRN Training | | U737-D | 2019-05-16 09:0 | 9:42, 30 min | 628949.4425 m 7⁄- 0.0029 m 152170.5296 m 7⁄- 0.0016 m | 30 84 | 0° 22' 20.7867" N ½ 0.0029 r 1° 11' 55.7456" W ½ 0.0016 r -15.6372 m ½ 0.0142 m | n n | 0.0146 m Phase Fixed | |
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When the computation is complete you will see information about your project.

Click on the Full Report button to see project details

| tude SD Longitu m 0.0016 m | ude SD Height 1 0.0142 m |
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The Full Report in come up in a separate window.

On the report page you can see the point occupation results which are a weighted average from each of the baselines (up to 6) per point submitted.

The individual baseline results for each of the baselines used is also shown.

The report can be printed or saved to your local computer.



If you wish to use Virtual Rinex during the computation you will need to specify it on the computation screen.



By clicking on the Use Virtual Rinex Checkbox



So the question is when should I was Virtual Rinex?

(CLICK)

As a basic guide, If your point is greater than 14 km from any base station.



Click the submit button when you are ready to start the computation.



Again, a confirmation screen will appear. Click confirm to continue.

| Ron Hanson | Home / Post Processing / Results | | | | |
|--|---|---|---------------------------------------|------------------------|------------|
| 👾 Shop 🛑 Post Processing | e Results | | | | |
| - 🛓 RINEX Data | On this page, all results related to any SBC p | oost-processing service are displayed, dividen | rtual RINEX Data | Coordinate Computation | ons |
| Account Details | S. Processed at 2019-07-19 12:08:58 Project: sample | 1 File(s), 0 Point(s) Use Virtual RINEX: Yes | Target System: FL N NAD83 2011 FPRN16 | | 0 0 |
| S Contact | 4. Processed at 2019-07-19 11:22:07 Project: <i>Empty</i> | 1 File(s), 1 Point(s) Use Virtual RINEX: No | Target System: FL N NAD83 2011 FPRN16 | ~ | • |
| FPRN Products FPRN Training | 3. Processed at 2019-07-19 10:50:38 Project: sample2 | 6 File(s). 0 Point(s) Use Virtual RINEX: No | Target System: FL N NAD83 2011 FPRN16 | A | 0 ~ |
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| | 1. Processed at 2019-07-19 09:43:18 Project: sample | 1 File(s). 0 Point(s) Use Virtual RINEX: No | Target System: FL N NAD83 2011 FPRN16 | A | • |
| | All Computation results older than 2019-06-19 | are automatically removed. | < 1 b. | | |
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You will again be taken to the Results page.

| on nanson | Home / Post Processing / Pesults | | | | |
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| Contact | Show File Details | | | | Full R |
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| FPRN Products FPRN Training FPRN News | U737-D 2019-05- | 16 10:44:42, 30 min | 628949,4286 m ½ 0.0023 m 152170.5374 m ½ 0.0017 m | 30° 22' 20.7869" N *∕ 0.0023 m 84° 11' 55.7461" W *⁄ 0.0017 m -15.5473 m *⁄ 0.0039 m | 0.0048 m xRTK |
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| | 3. Processed at 2019-07-19 10:50:38 Project: sample2 2. Processed at 2019-07-19 10:34:01 Project: sample | 6 File(s), 0 Point(s) Use Virtual RINEX: No 14 File(s), 0 Point(s) Use Virtual RINEX: No | Target System: F | L N NAD83 2011 FPRN16 | 2 |

Click on the Full Report button to view, print, or save the document.



What else is available on the Customer Portal?



We offer many of the same links on the Customer Portal that are on the FPRN Home Page.

(CLICK)

A link to our dynamic station map that is updated every fifteen seconds.

(CLICK)

You can pull up a list of our Real-Time Products with IP addresses and Ports

(CLICK)

We keep a library of different training presented by myself and others that is free to download

(CLICK)

We have an archive of all the Newsletters that have been sent out to the end users.

(CLICK)

We also have a link to our alternate emailer. We use this email option when we don't have access to the Customer Portal.

If you sign up it will allow you to receive an email when the system is down.

(CLICK)

The links across the bottom of the screen will take you to our homepage

(CLICK)

Download our Google Earth overlay

(CLICK)

Download the Florida Custom Geiod

(CLICK)

And finally view and download our FDOT data sheets and superseded Control sheets



The NGS has proposed a new set of datums that will go into effect in 2022.

The FDOT will follow the NGS into the new National Spatial Refence System.

Actually, We will jump in front of the NGS.

We are going to start broadcasting the ITRF 2014 solution in the near future.

Why?

There will be upcoming projects that will require transformation to the new NSRS of 2022.

Data Delivery System and Gendetic Survey CLEX HERE TO SWITCH TO OLDER SET Geopotential Coord tric Coordin Reference Frame: NATRF2022 SurveyEpoch: 2012.03 Datum: NAPGD2022 Survey Epoch: 2012.0 ORTHO HT: 258.025 = 0.015m GEOID HT: -27054 = 0.004m (GEOID18) UTM 49312 47495 -00*1 0.999 0.999 LAT: 44° 59' 2.74798' = 0.005n LON: 49' 19' 3.66719' = 0.005n ELL HT: 230.942 = 0.005n NORTHING: EASTING CONVERGENCE SCALE FACTOR: COMB FACTOR US NATIONAL G 214m 214m 41.74 and the second ----to the second se GEOID (get proof height and Konstry feet any node) NCAT (see this position in other frames, unit) DEFLEC (compute deflection of vertical) VELOCITY (get selectly in numerical form) HT DP (are the position in other frames, quoch date () VDATUM DATA EXPLORER (grine data, mitudet, briteror verbal datam) upprate data, mitudet, briteror verbal datam)

Data Sheets

CORS Stations Points included in Geoid (2470 monuments) Monuments adjusted to NAD 83 (2011)

New data sheets will not include previous datums

| | Historically used west longitudes at NGS |
|--------------------------------|--|
| | Both negative and positive west longitudes |
| | Sometimes ±180° at anti-prime meridian (Guam 145°E) |
| Positive Lonaitudes | Sometimes keep increasing west (Guam 215°W) |
| Florida lies between | Advantages of positive east longitudes |
| 80° W (West Palm Beach) and | NSRS spans anti-prime but <i>NOT</i> prime meridian From +140° → +300° (vs. +140° → -60°) No ±180° "switch" at anti-prime meridian |
| | GEOID2022 grid from +170° → +350° (vs. +10° → - 10°) |
| Positive East Longitudes | Longitude increases east (just like SPCS eastings) |
| 280° E (West Palm Beach | • It just makes sense |
| and | Default positive east (but west longitude still available) |
| 272° E (Pensacola) | |

Another major impact will be switching over to positive longitudes

Currently Florida lies between $80^{\circ}\,W$ and $88^{\circ}\,W$

In the new system it will lie between 280° E and 272° E




Since we are changing things around why not change our State Plane Coordinate System

- Statewide design for Florida, using an OM projection
- Design criterion of ±400 ppm has all percentages of 100%
 - Next lower criterion of ±300 ppm did not meet all three (90%, 75%, 50%) minimum requirements, so ±400 ppm is smallest available criterion value
 - ±400 ppm corresponds to the distortion limits of a UTM zone (with respect to the ellipsoid)



- Replaces the existing 3 SPCS 83 zones (shown on the next slide)
- Note that following characteristics:
 - Uses 2 OM projections to replace existing 2 TM projections for the peninsula
 - Uses 1-parallel LCC to replace existing 2-parallel LCC for panhandle
 - Uses ±40 ppm design criterion (less than minimum of ±50 ppm) because existing areas are too narrow for a ±50 ppm criterion



What are we doing to keep up with NGS?

By the end of the year the FPRN will be broadcasting ITRF2014 coordinates in addition to NAD 83 (2011) coordinates.

Along with the ITRF Broadcast we will be adding the New coordinates systems into the computation service.

The datasheets will be updated to include both NAD 83 (2011) and ITRF 2014.

We will be customizing Geoid models as they are released.

Compliance

- As an Agency we may be "coerced" to comply with the new standard.
- Strings may be attached to any Federally Funded Projects
- Due to the symbiotic relationship between the FPRN and Foundation CORS (NGS) the Statewide Reference Network <u>WILL</u> migrate to the new datum.