EDUCAN
Ground Station setup

Ground Receiver

- It is used to collect the data transmitted from CanSat.
- The received data can be stored locally or can be transmitted to the nearest device for analysis.

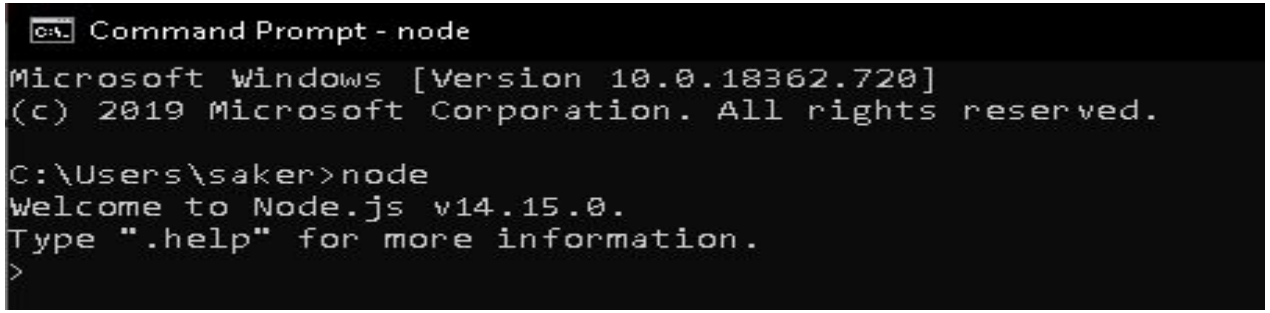
Receiving Component

SX1278 LoRa Module

- 137MHz to 525MHz Long Range Low Power Transceiver
- The SX1278 RF module is mainly used for long-range spread spectrum communication
- high sensitivity of -148 dBm with a power output of +20 dBm
- long transmission distance and high reliability.
- Consume low current.

Software Installation

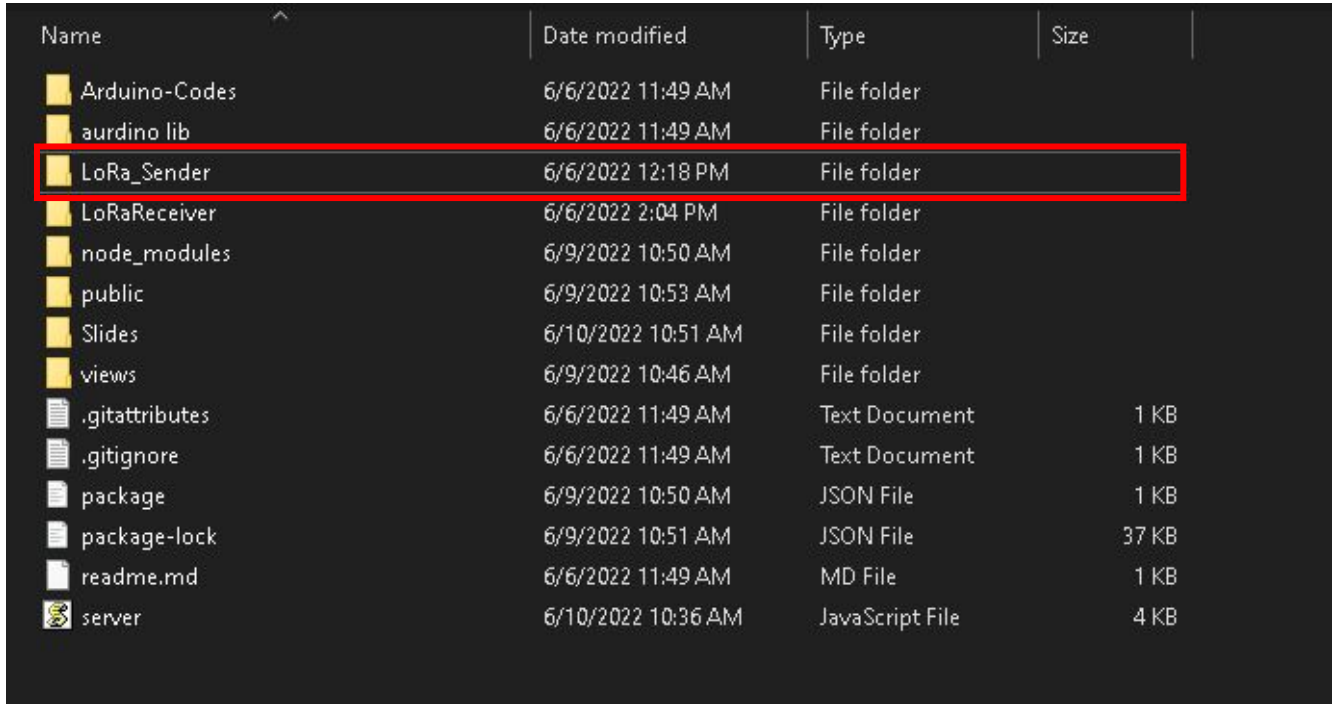
- Install node js from https://nodejs.org/en/download/
- Enter command ‘node’ in command prompt to check installation



- The downloaded version will appear in command prompt

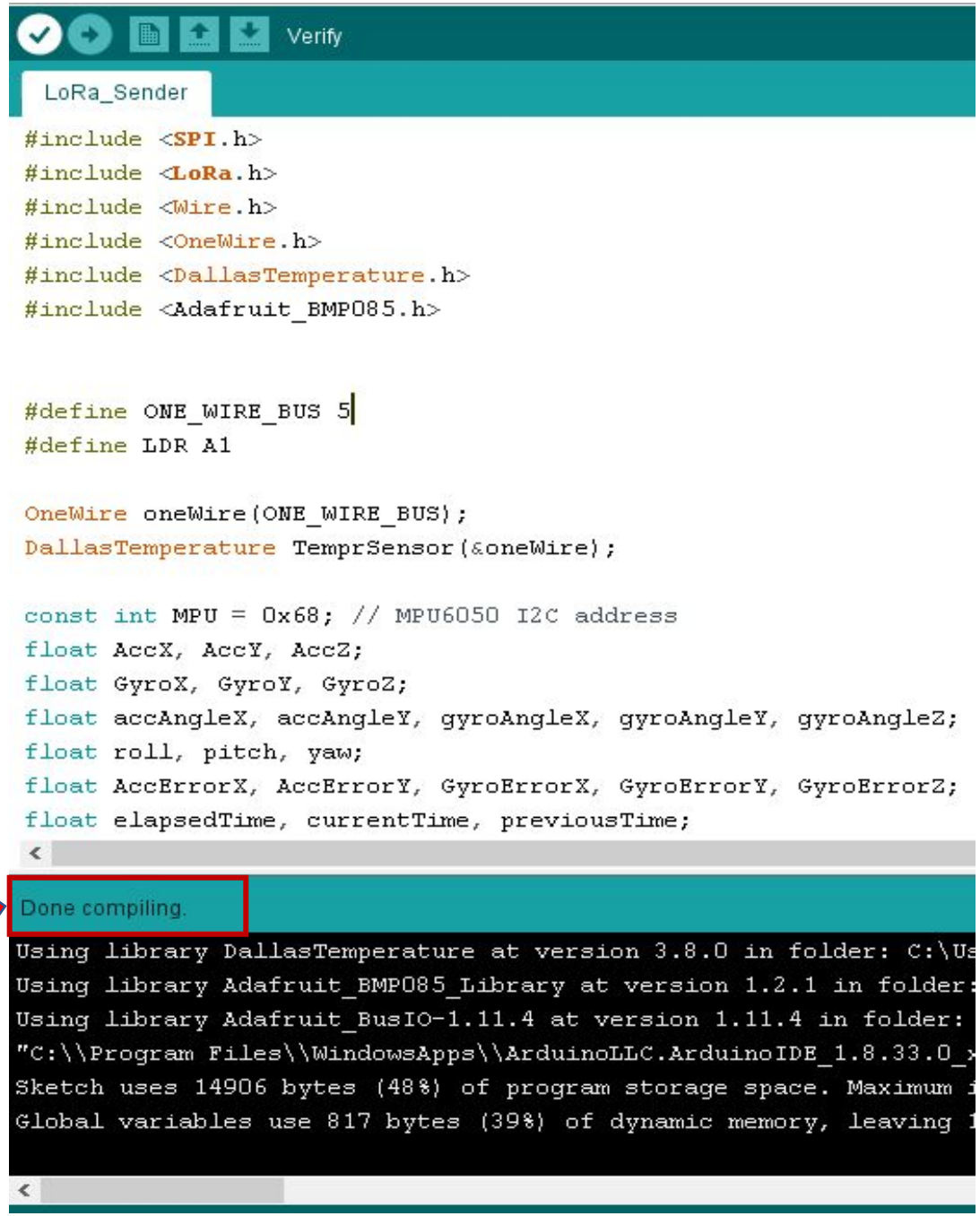
Step-1:

- Download CanSat folder
- Connect CanSat transmitter module on the computer
- Open the folder LoRa_sender and open .ino file in Arduino ide



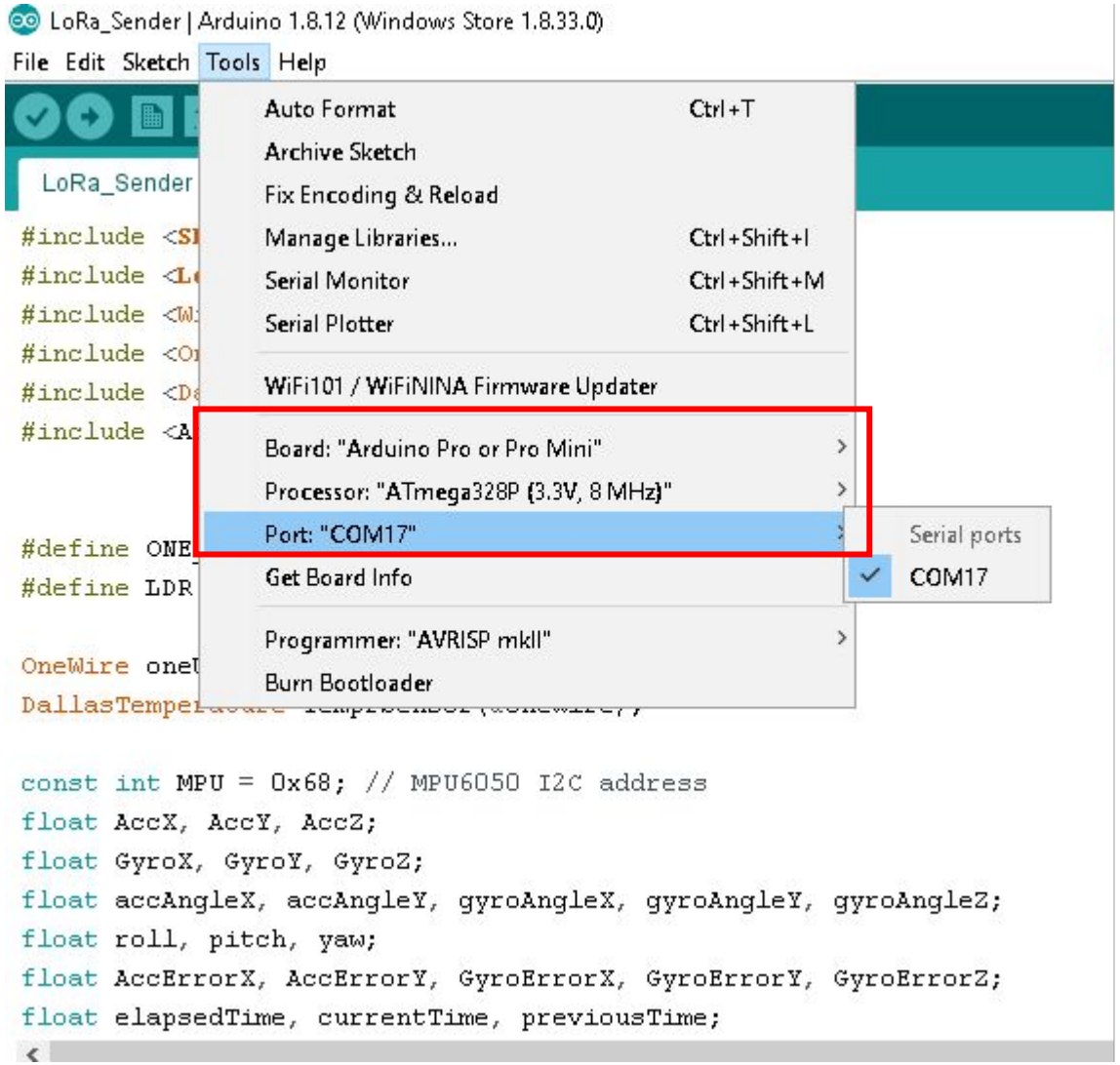
Step-2:

- Upload required library files from the Arduino Library file
- Compile the code to check whether all library file are uploaded or not.



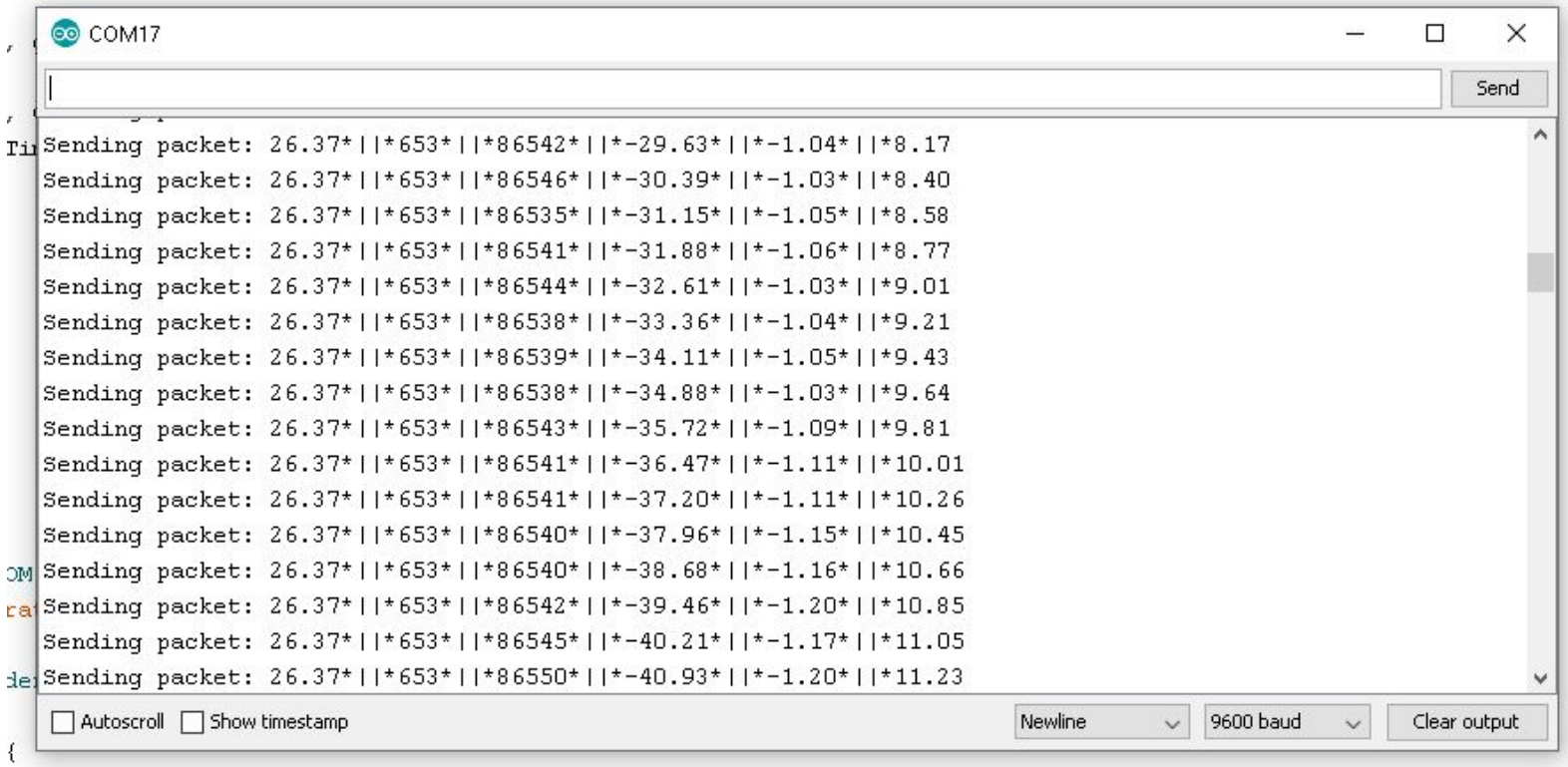
Step-3:

- Select port from the tools
- Choose board from the tools to Arduino pro mini
- Select processor to atmega328p (3.3v, 8 MHz)
- Upload code to the Arduino pro mini board



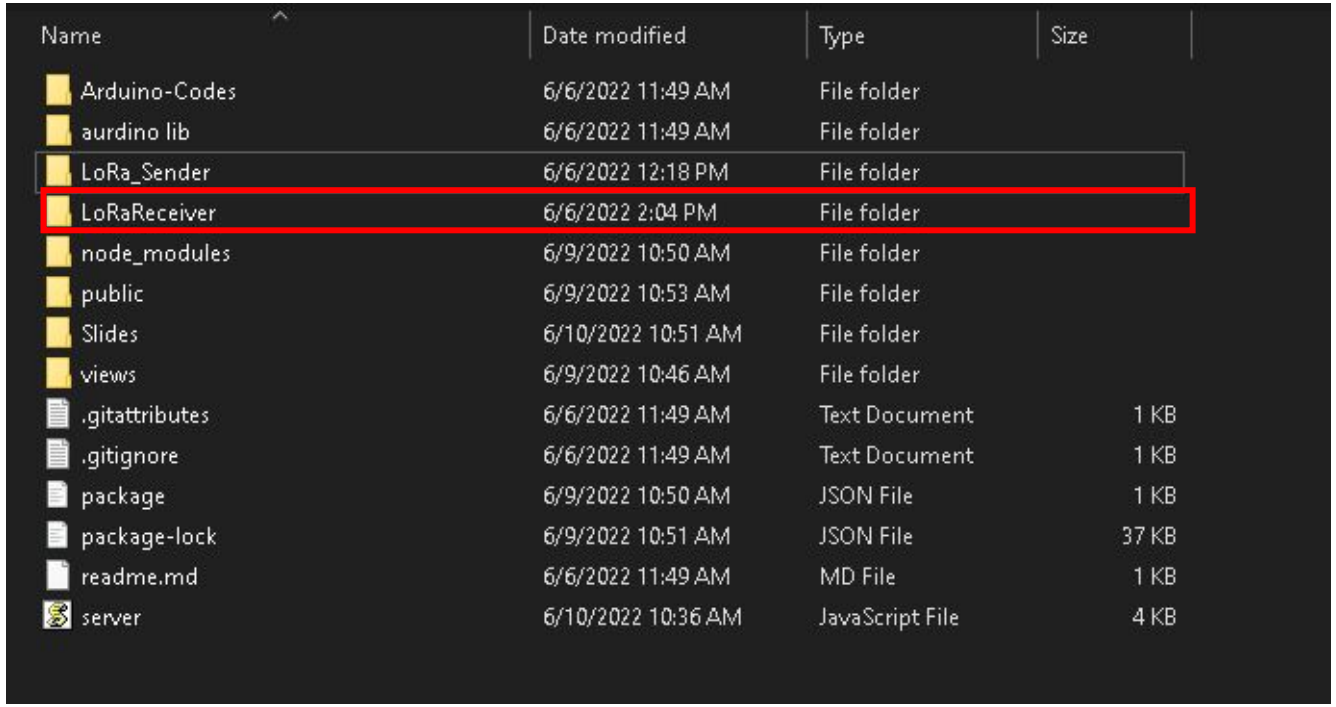
Step-4:

- Open serial monitor to see the transmitted data
- It should look like as in the figure,



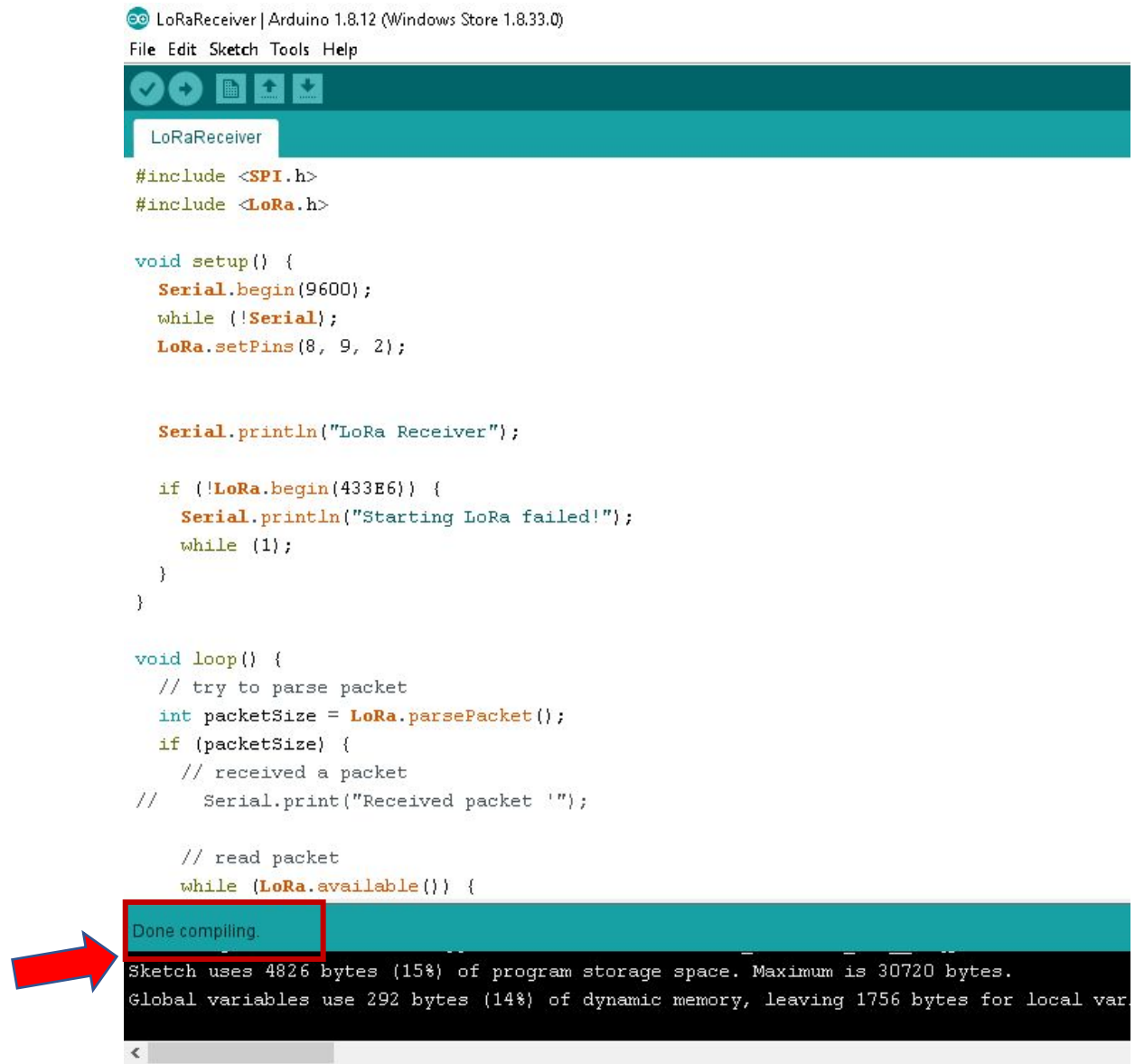
Step-5:

- Connect ground receiver board to the computer
- Open folder LoRaReceiver folder and open the .ino file in Arduino ide



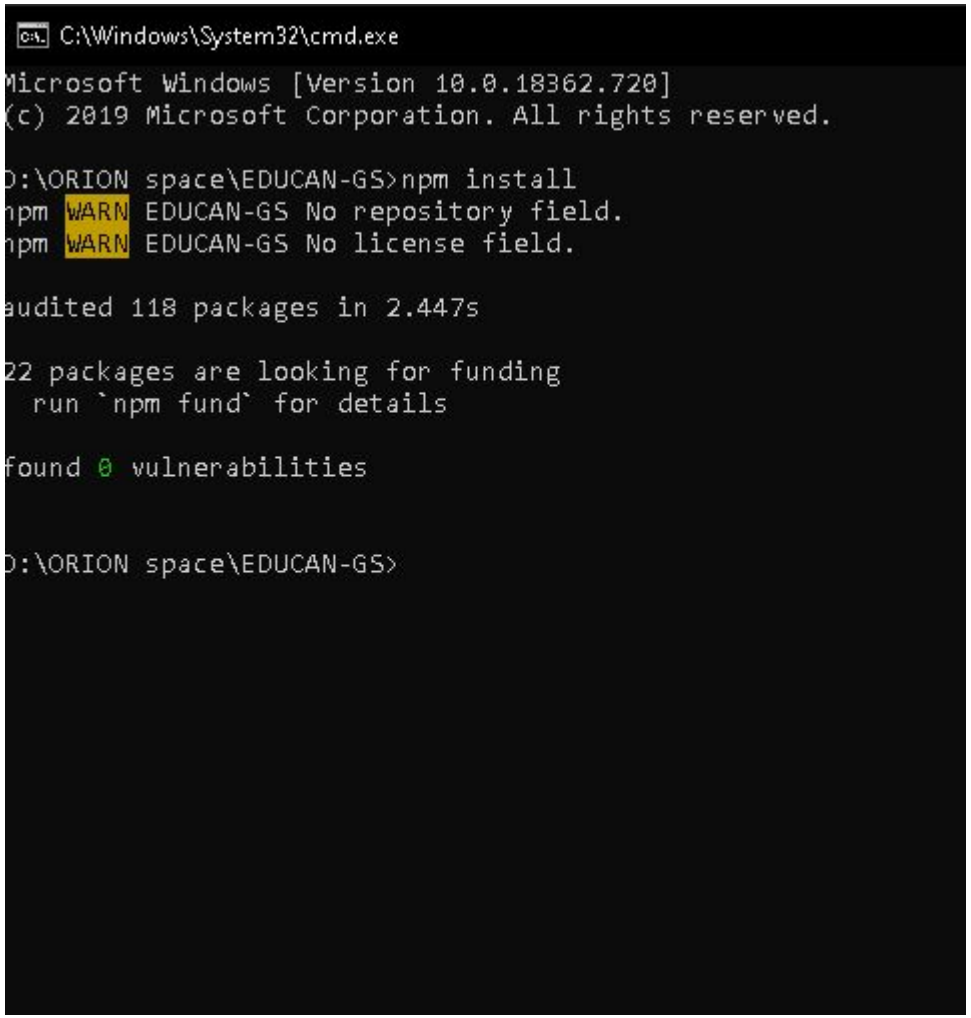
Step-6:

- Compile code to check whether it will compile or not
- Upload code to the receiver board
- Select the port before uploading



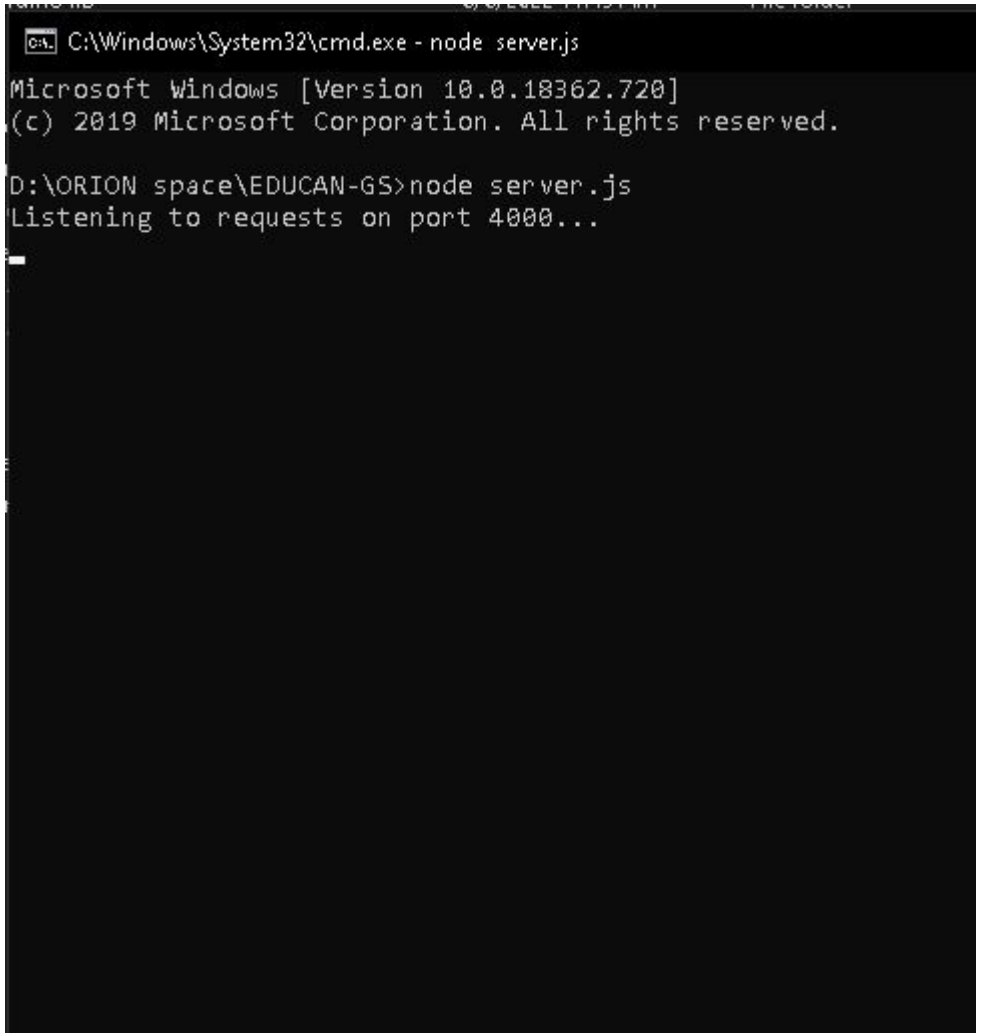
Step-8:

- open command prompt inside the downloaded folder
- enter command: ”npm install” to install require dependencies



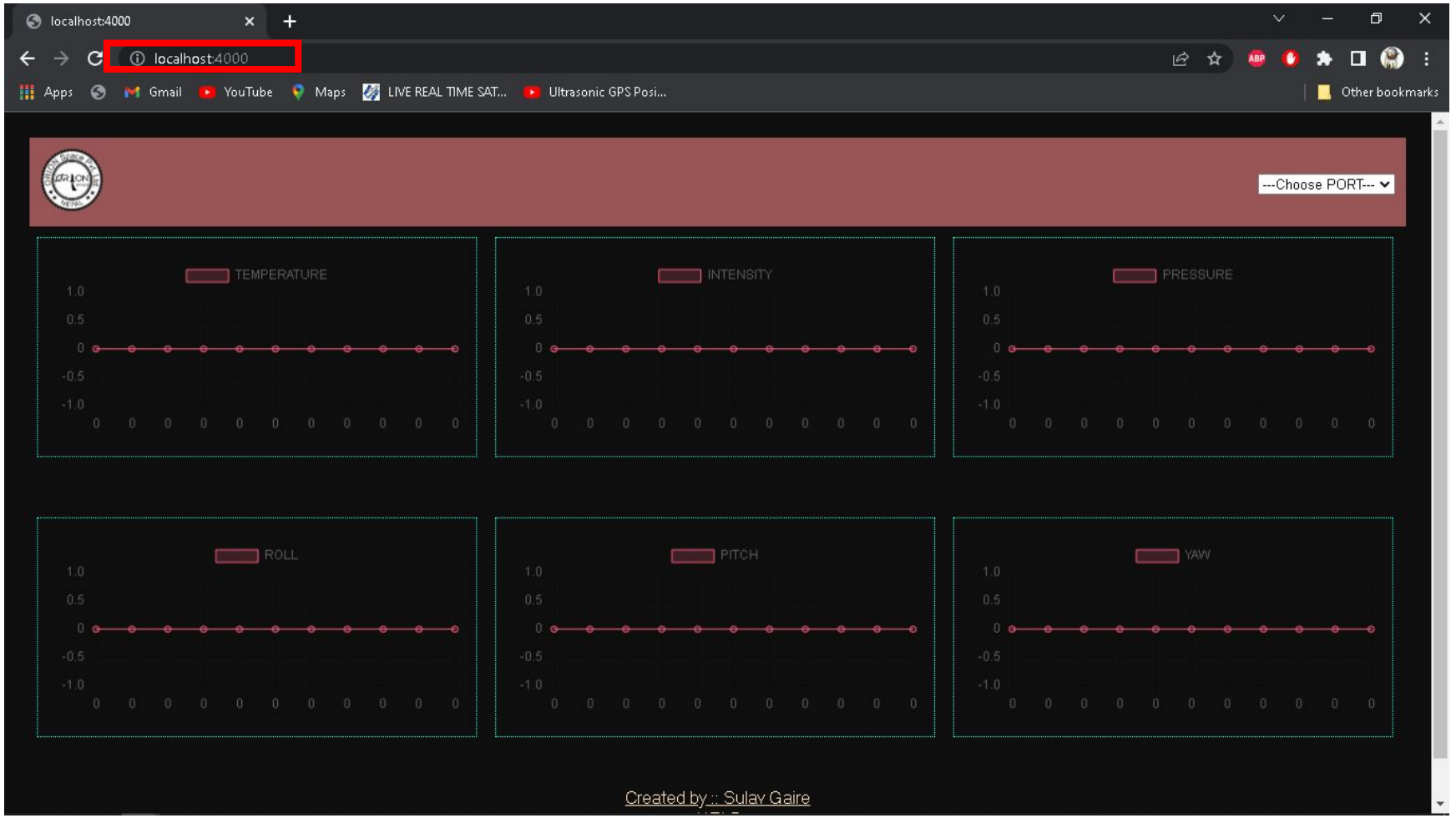
Step-9:

- Enter command: “node server.js” in your command prompt
- This start the server.



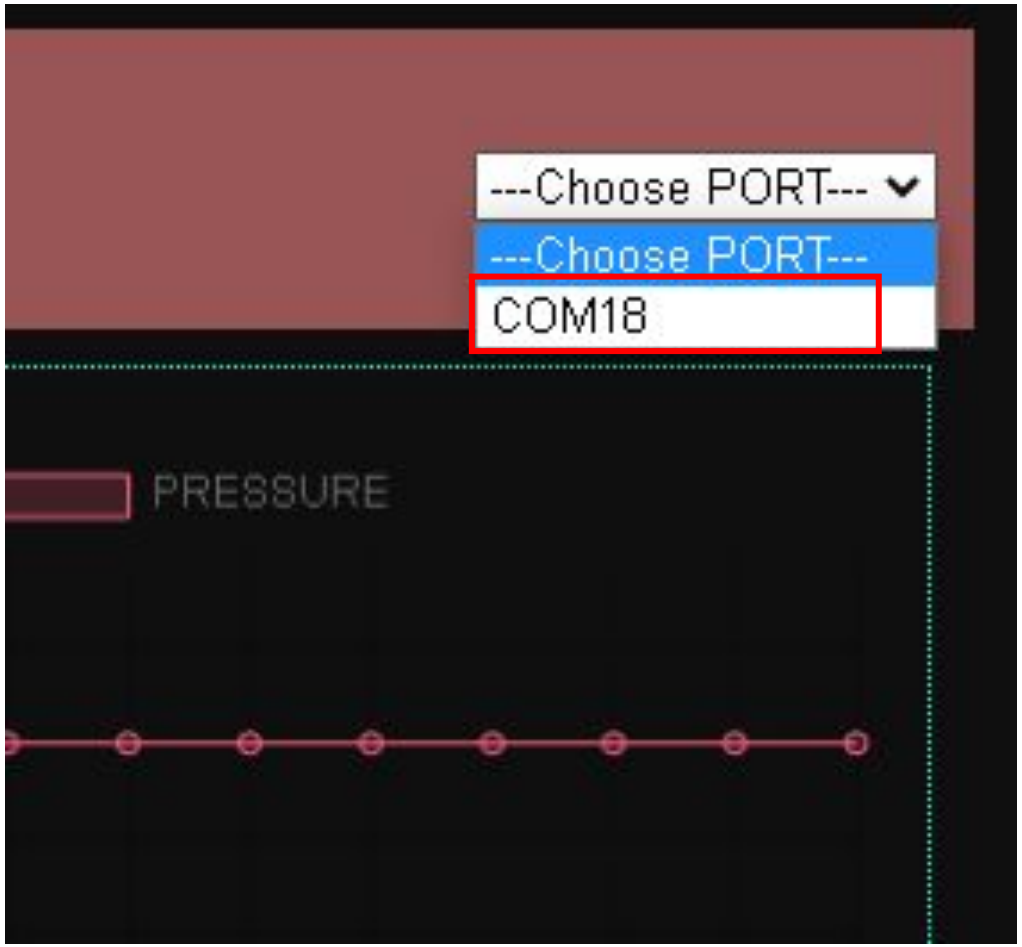
Step-10:

- Open your browser and visit http://localhost:4000/



Step-11:

- Select the port connected to the receiver from the choose port section
- Close all the serial monitor opened before
- If more port are available select the port while uploading receiver code .



Step-12:

- Now the data starts to plot in the graph .

Record

- The received data is stored in dataarray file
- Import this file in excel if further analysis is required
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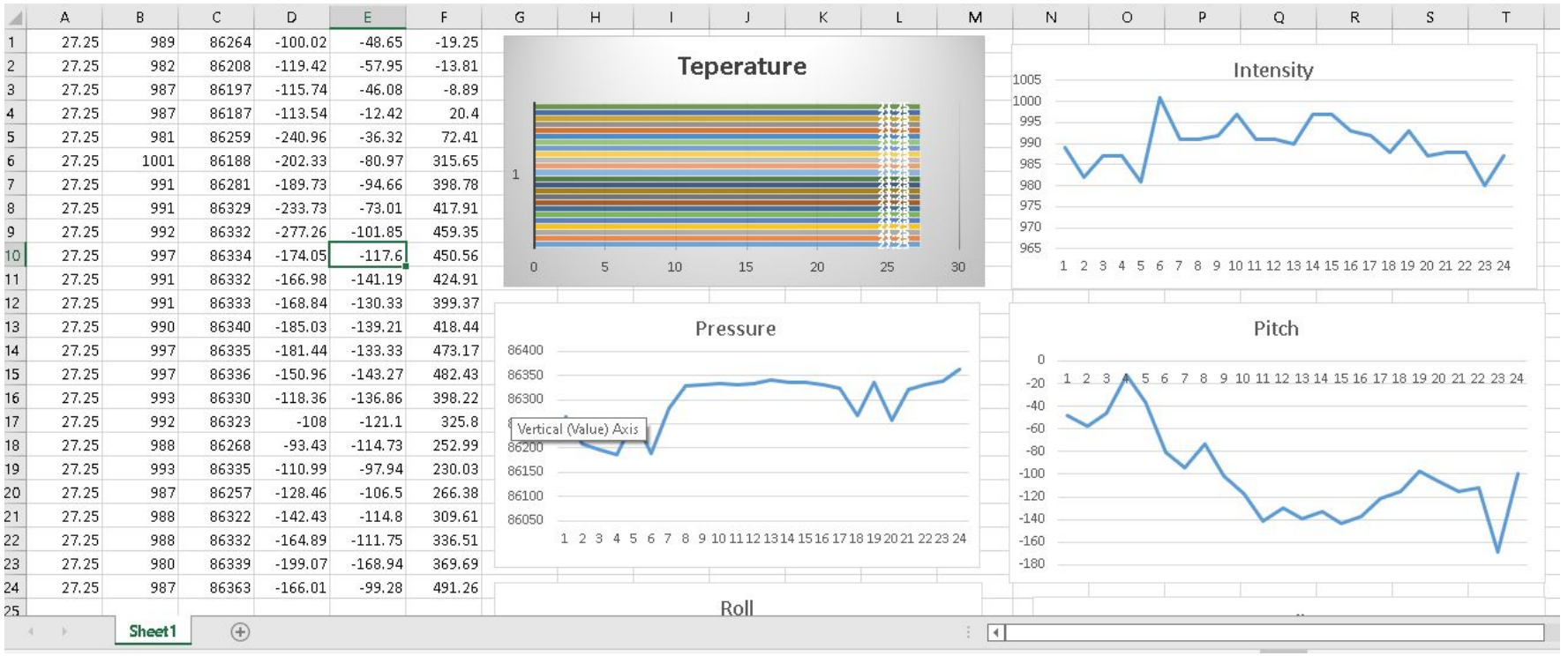

	A	B	C	D	E	F
1	27.25	989	86264	-100.02	-48.65	-19.25
2	27.25	982	86208	-119.42	-57.95	-13.81
3	27.25	987	86197	-115.74	-46.08	-8.89
4	27.25	987	86187	-113.54	-12.42	20.4
5	27.25	981	86259	-240.96	-36.32	72.41
6	27.25	1001	86188	-202.33	-80.97	315.65
7	27.25	991	86281	-189.73	-94.66	398.78
8	27.25	991	86329	-233.73	-73.01	417.91
9	27.25	992	86332	-277.26	-101.85	459.35
10	27.25	997	86334	-174.05	-117.6	450.56
11	27.25	991	86332	-166.98	-141.19	424.91
12	27.25	991	86333	-168.84	-130.33	399.37
13	27.25	990	86340	-185.03	-139.21	418.44
14	27.25	997	86335	-181.44	-133.33	473.17
15	27.25	997	86336	-150.96	-143.27	482.43
16	27.25	993	86330	-118.36	-136.86	398.22
17	27.25	992	86323	-108	-121.1	325.8
18	27.25	988	86268	-93.43	-114.73	252.99
19	27.25	993	86335	-110.99	-97.94	230.03
20	27.25	987	86257	-128.46	-106.5	266.38
21	27.25	988	86322	-142.43	-114.8	309.61
22	27.25	988	86332	-164.89	-111.75	336.51
23	27.25	980	86339	-199.07	-168.94	369.69
24	27.25	987	86363	-166.01	-99.28	491.26
25						

- Rename or move dataarray file to another location before receiving new data