

# How to Access GNSS Receiver and GNSS Data at UTokyo?

**Dinesh Manandhar**

Center for Spatial Information Science

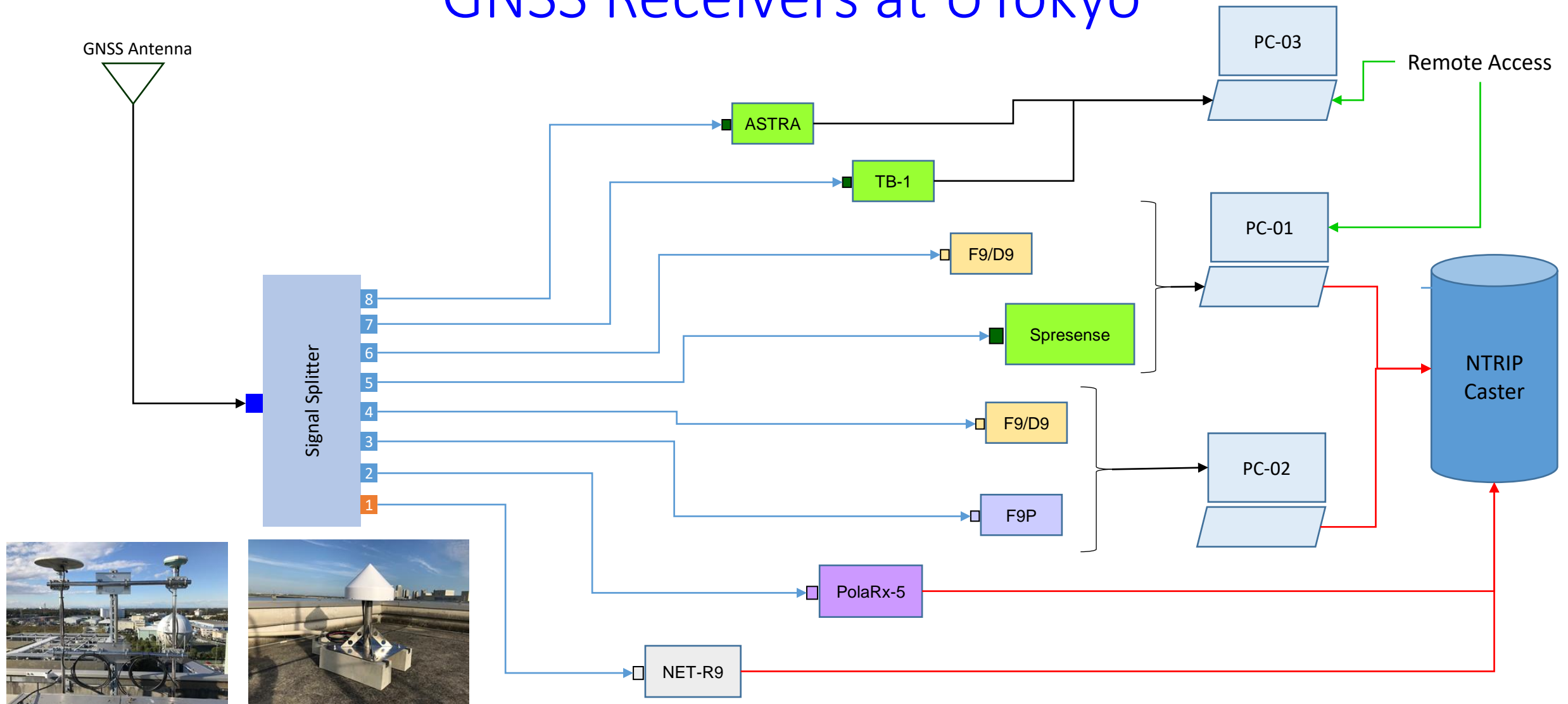
The University of Tokyo

Contact Information: [dinesh@csis.u-tokyo.ac.jp](mailto:dinesh@csis.u-tokyo.ac.jp)

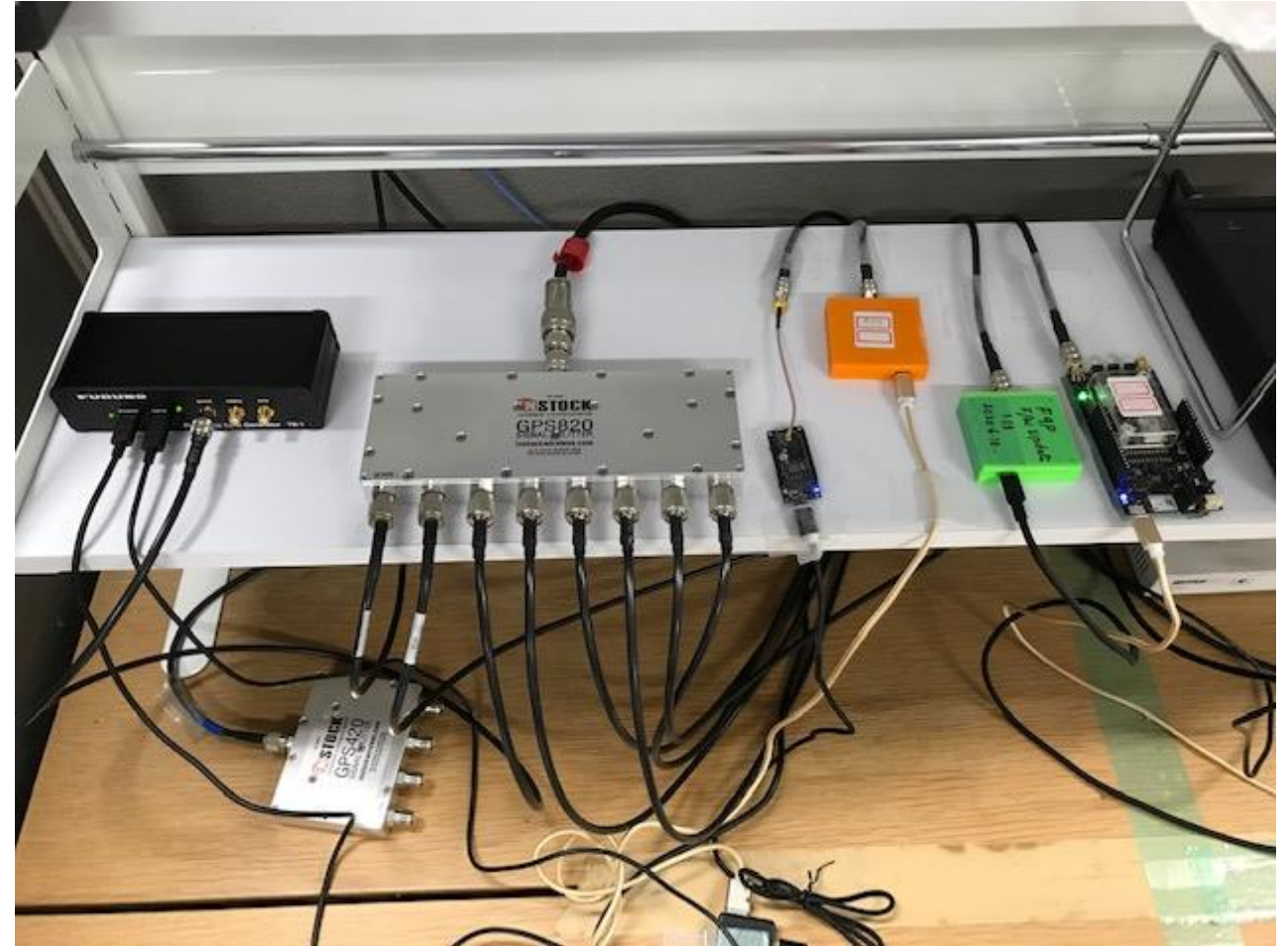
# Data and Software for Hands-On

- DATA
  - STATIC DATA
  - DYNAMIC DATA
- Software
  - RTKLIB
  - U-center
  - MAD-WIN/MAD-PI/MADROID

# GNSS Receivers at UTokyo

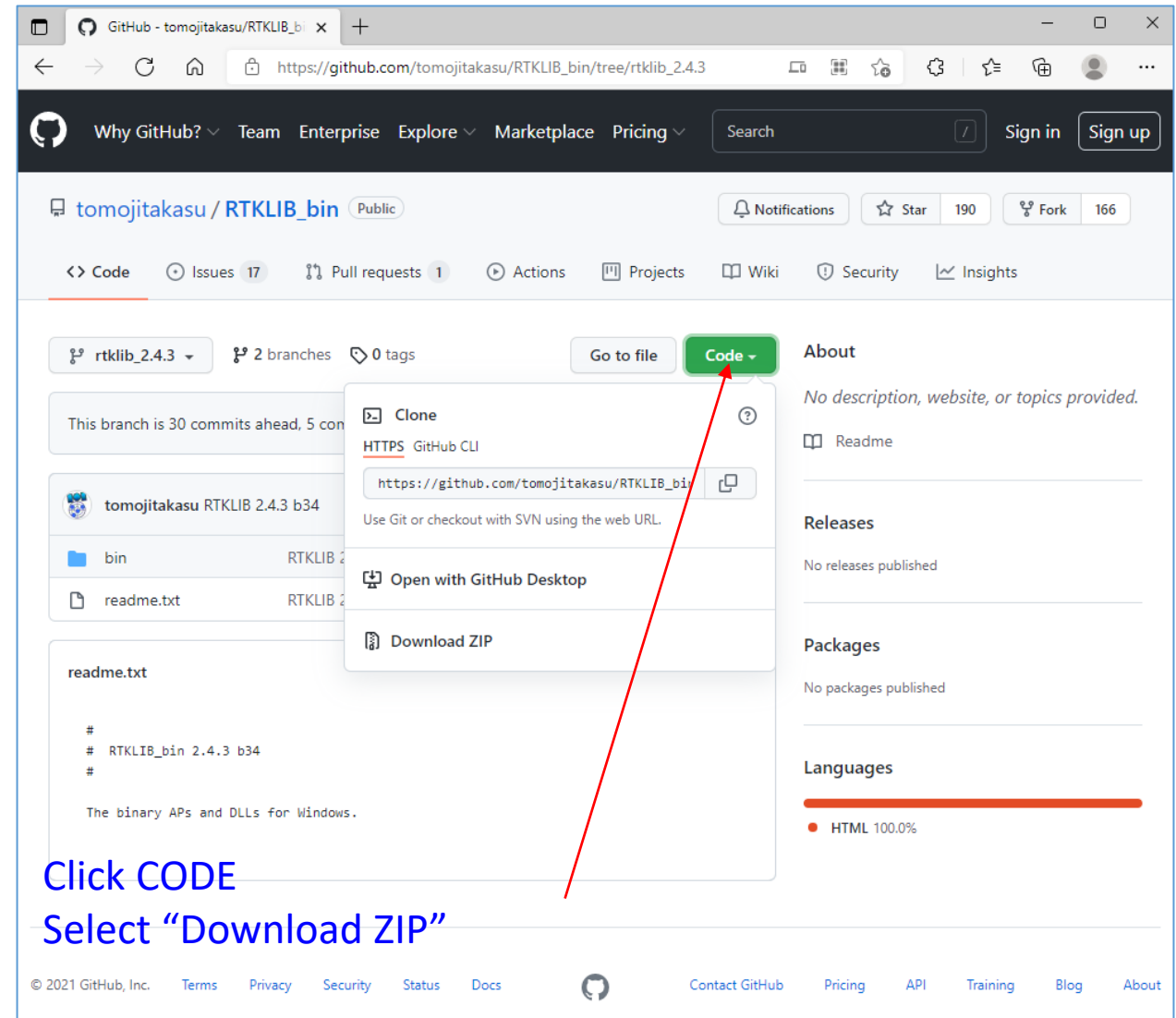


# GNSS Receivers at UTokyo



# Installation of RTKLIB

- Download RTKLIB software
  - Version 2.4.3b34
  - Main Page: <http://www.rtklib.com/>
  - Windows Binary Files:  
[https://github.com/tomojitakasu/RTKLIB\\_bin/tree/rtklib\\_2.4.3](https://github.com/tomojitakasu/RTKLIB_bin/tree/rtklib_2.4.3)
  - Download the ZIP file to a PC
  - Unzip the folder to a working directory in the PC
  - Now go to unzipped folder
    - It may be something like rtklib\_2.4.3
  - Go to “bin” folder



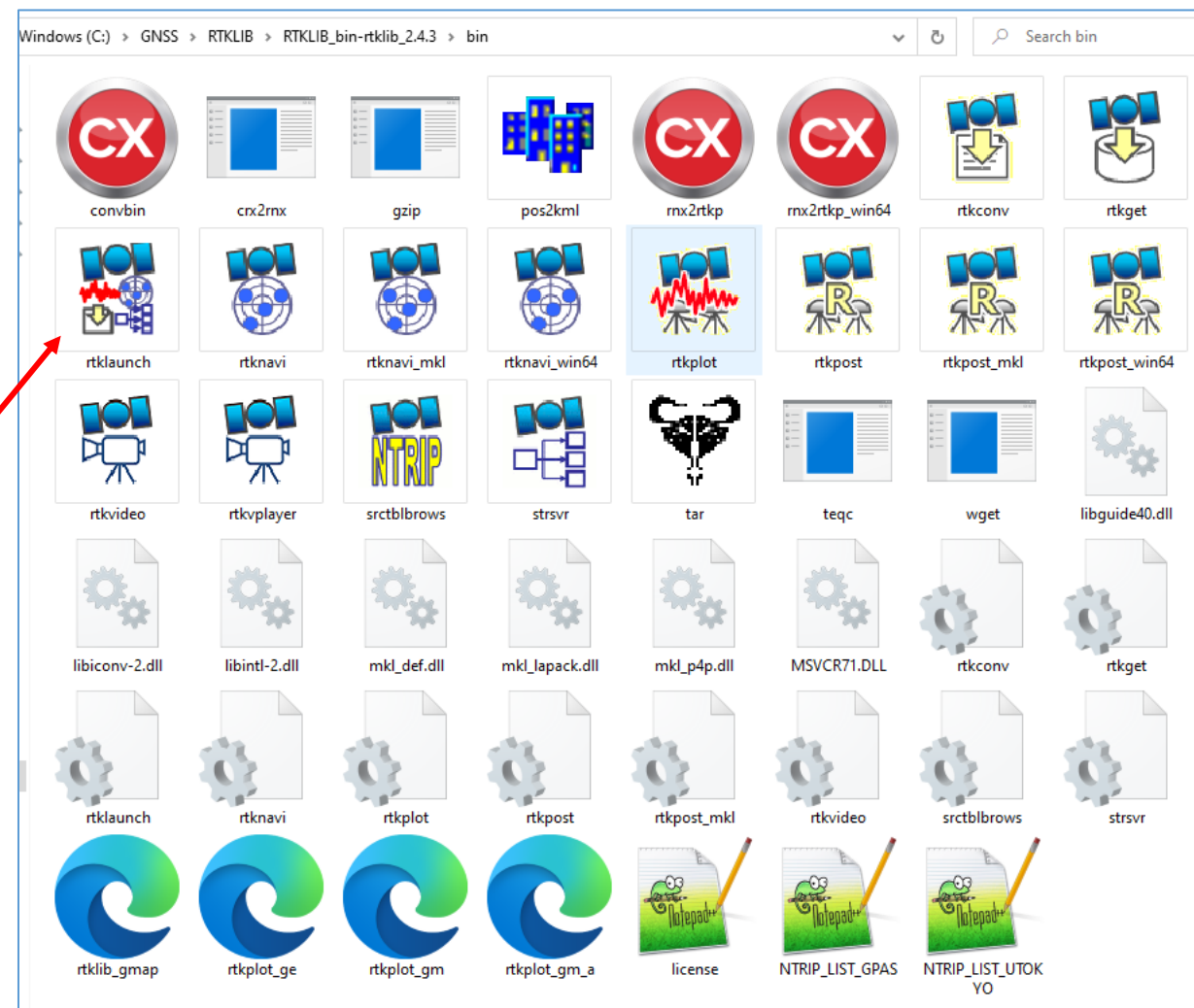
Click CODE

Select “Download ZIP”

# RTKLIB Files in BIN Folder

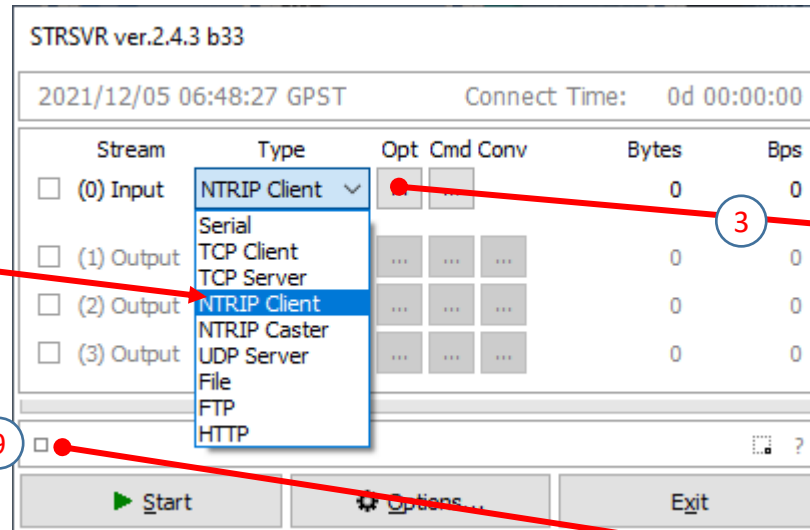
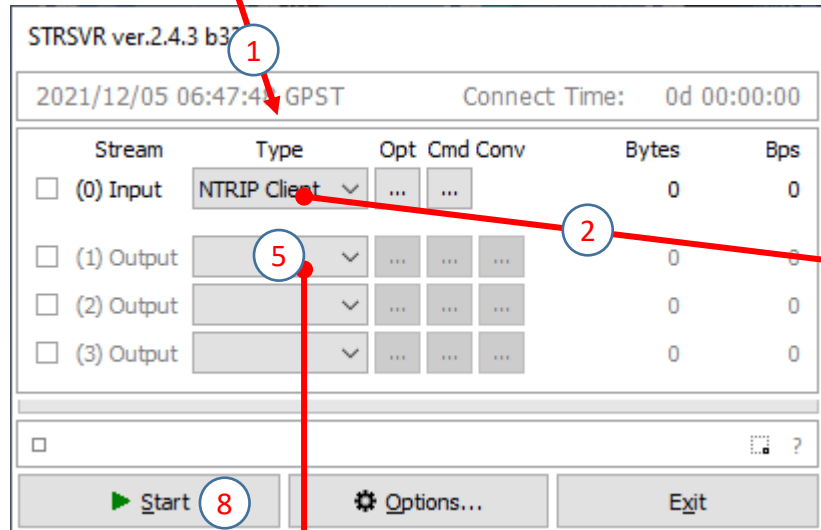
Windows (C:) > GNSS > RTKLIB > RTKLIB\_bin-rtklib\_2.4.3 > bin

Name	Type	Size	Date modified
convbin	Application	2,392 KB	2020/05/03 8:14 PM
crx2rnx	Application	79 KB	2020/05/03 8:14 PM
gzip	Application	90 KB	2020/05/03 8:14 PM
pos2kml	Application	483 KB	2020/05/03 8:14 PM
rx2rtkp	Application	2,719 KB	2020/05/03 8:14 PM
rx2rtkp_win64	Application	973 KB	2020/05/03 8:14 PM
rtkconv	Application	5,751 KB	2020/05/03 8:14 PM
rtkget	Application	3,544 KB	2020/05/03 8:14 PM
rtklaunch	Application	3,799 KB	2020/05/03 8:14 PM
rtknavi	Application	7,023 KB	2020/05/03 8:14 PM
rtknavi_mkl	Application	7,566 KB	2020/05/03 8:14 PM
rtknavi_win64	Application	7,567 KB	2020/05/03 8:14 PM
rtkplot	Application	7,390 KB	2020/05/03 8:14 PM
rtkpost	Application	6,444 KB	2020/05/03 8:14 PM
rtkpost_mkl	Application	6,444 KB	2020/05/03 8:14 PM
rtkpost_win64	Application	8,578 KB	2020/05/03 8:14 PM
rtkvideo	Application	10,656 KB	2020/05/03 8:14 PM
rtkvplayer	Application	10,574 KB	2020/05/03 8:14 PM
srctblbrows	Application	4,286 KB	2020/05/03 8:14 PM
strsvr	Application	4,395 KB	2020/05/03 8:14 PM
tar	Application	164 KB	2020/05/03 8:14 PM
teqc	Application	940 KB	2020/05/03 8:14 PM
wget	Application	395 KB	2020/05/03 8:14 PM

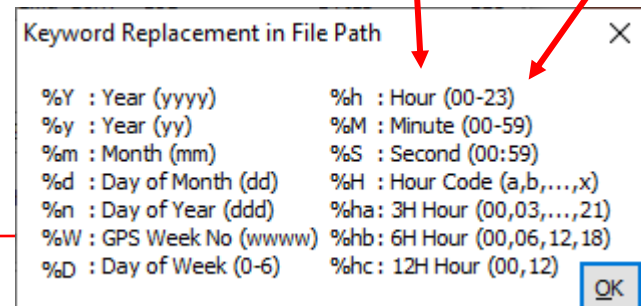
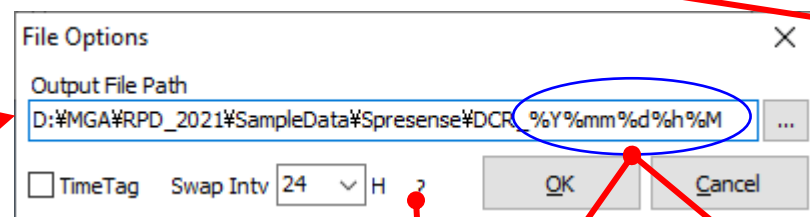
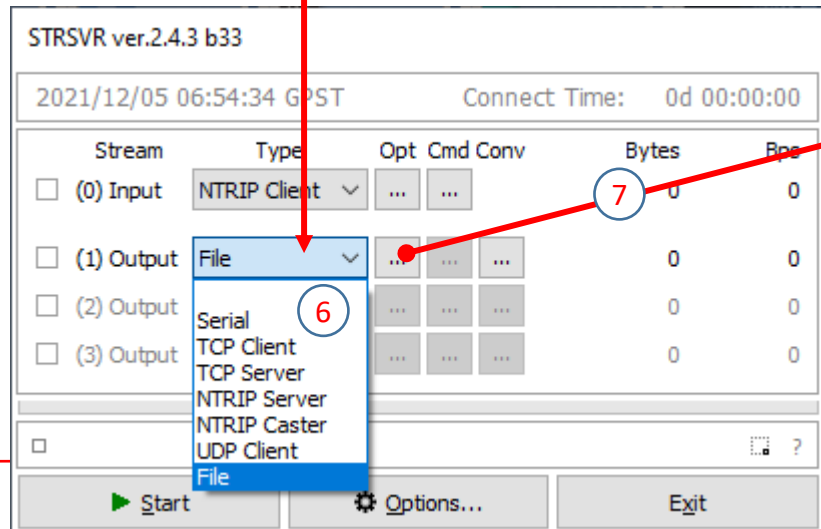
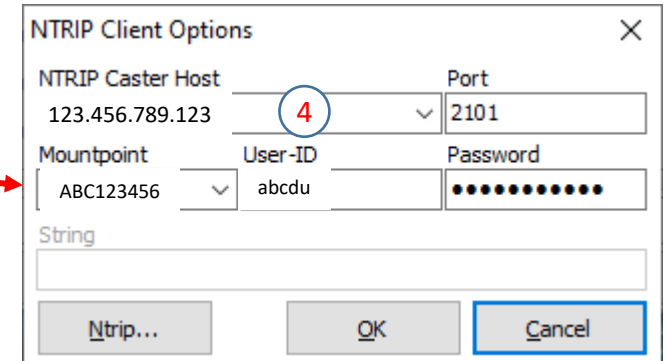


Double Click  
RTKLAUNCH.exe  
Or  
Create a short-cut and  
copy to Desktop for easy launching

# Setting STRSVR of RTKLIB



NTRIP IP Address, User ID and Password will be provided during the lecture.



File name can be generated automatically  
 %Y%m%d%h%M%S generates filename with current date and time  
 such as 20220526170000  
 Example:  
 %Y%m%d%h%M%S.ubx → 20220526170000.ubx  
 %Y%m%d%h%M%S\_Static.ubx → 20220526170000\_Static.ubx  
 KASH\_%Y%m%d%h%M%S.ubx → KASH\_20220526170000.rtc

Select Correct File Format  
It may be ublox, SBF, RTCM3 or other

RTKLIB v.2.4.3 b33

RTKNAVI ver.2.4.3 b34

2000/01/01 00:00:00.0 GPST

Lat/Lon/Height

Rover SYS

Solution: --- □

N: 0° 00' 00.0000"

E: 0° 00' 00.0000"

He: 0.000 m

N: 0.000 E: 0.000 U: 0.000 m

Age: 0.0 s Ratio: 0.0 #Sat: 0

Start Mark... Plot Options... Exit

Options

Setting1 Setting2 Output Statistics Positions Files Misc

Positioning Mode Kinematic

Frequencies / Filter Type L1+2 Forward

Elevation Mask (°) / SNR Mask (dbHz) 10 ...

Rec Dynamics / Earth Tides Correction OFF OFF

Ionosphere Correction Broadcast

Troposphere Correction Saastamoinen

Satellite Ephemeris/Clock Broadcast

Sat PCV  Rec PCV  PWU  Rej Ed  RAIM FDE  DBCorr

Excluded Satellites (+PRN: Included)

GPS  GLONASS  Galileo  QZSS  BDS  NavIC  SBAS

Load... Save... OK Cancel

Options

Setting1 Setting2 Output Statistics Positions Files

Integer Ambiguity Res (GPS/GLO/BDS) Continu

Min Ratio to Fix Ambiguity 3.0

Min Confidence / Max FCB to Fix Amb 0.9999

Min Lock / Elevation (°) to Fix Amb 0

Min Fix / Elevation (°) to Hold Amb 10

Outage to Reset Amb / Slip Thres (m) 5

Max Age of Diff (s) / Sync Solution 30.0

Reject Threshold of GDOP/Innov (m) 30.0

Max # of AR Iter/# of Filter Iter 1

Baseline Length Constraint (m) 0.000

Load... Save... OK

Input Streams

Input Stream	Type	Opt Cmd	Format	Opt
<input checked="" type="checkbox"/> (1) Rover	NTRIP Client	...	u-blox UBX	...
<input checked="" type="checkbox"/> (2) Base Station	NTRIP Client	...	RTCM 3	...
<input type="checkbox"/> (3) Correction	Serial	...	RTCM 2	...

Transmit NMEA GGA to Base Station OFF

Reset Cmd

Input File Paths

NTRIP Client Options ROVER Setting

NTRIP Caster Address 157.82.223.139 Port 2101

Mountpoint TU001UB User ID utuser Password .....

Browse... Get Mountp OK Cancel

NTRIP Client Options Base Setting

NTRIP Caster Address 153.121.59.53 Port 2101

Mountpoint ECJ27 User ID gspase Password .....

Options

Setting1 Setting2 Output Statistics Positions Files Misc

Rover

Lat/Lon/Height (deg/m) 90.000000000 0.000000000 -6335367.6285

Antenna Type (\*: Auto) Delta-E/N/U (m) 0.0000 0.0000 0.0000

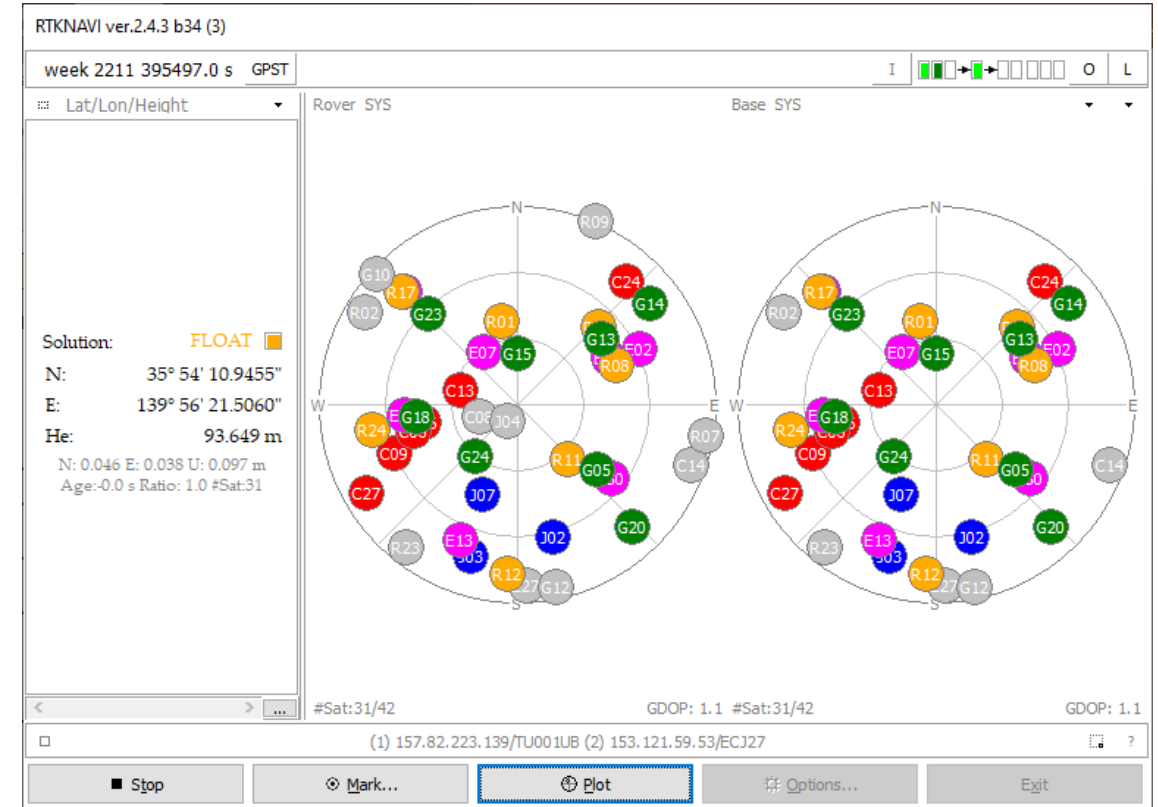
Base Station

RTCM/Raw Antenna Posi 90.000000000 0.000000000 -6335367.6285

Antenna Type (\*: Auto) Delta-E/N/U (m) 0.0000 0.0000 0.0000

Station Position File







RTKNAVI ver.2.4.3 b34

2000/01/01 00:00:00.0 GPST

Lat/Lon/Height

Rover SYS

Solution: --- □

N: 0° 00' 00.0000"

E: 0° 00' 00.0000"

He: 0.000 m

N: 0.000 E: 0.000 U: 0.000 m

Age: 0.0 s Ratio: 0.0 #Sat: 0

#Sat: 0/0 GDOP: 0.0

Start Mark... Plot Options... Exit

Input Streams

Input Stream	Type	Opt	Cmd	Format	Opt
<input checked="" type="checkbox"/> (1) Rover	NTRIP Client	...	...	Septentrio SBF	...
<input type="checkbox"/> (2) Base Station	Serial	...	...	RTCM 2	...
<input type="checkbox"/> (3) Correction	Serial	...	...	RTCM 3	...

Transmit NMEA GGA to Base Station: OFF

Reset Cmd: Max Base...

Input File Paths:

Time x1 + 0 s 64bit

OK Cancel

NTRIP Client Options

NTRIP Caster Address: 157.82.223.139 Port: 2101

Mountpoint: WRC021SB User ID: utuser Password: .....

Browse... Get Mountp OK Cancel

Select Correct File Format  
It may be ublox, SBF, RTCM3 or other

Options

Setting1 Setting2 Output Statistics Positions Files Misc

Positioning Mode: Single

Frequencies / Filter Type: L1+2 Forward

Elevation Mask (°) / SNR Mask (dBHz): 0 ...

Rec Dynamics / Earth Tides Correction: OFF OFF

Ionosphere Correction: Broadcast

Troposphere Correction: Saastamoinen

Satellite Ephemeris/Clock: Broadcast

Sat PCV  Rec PCV  PhWU  Rej Ed  RAIM FDE  DBCorr

Excluded Satellites (+PRN: Included):

GPS  GLONASS  Galileo  QZSS  BDS  NavIC  SBAS

Load... Save... OK Cancel

Select Single  
It may be DGPS,  
Kinematic, PPP or other

Use these buttons to select  
Output streams and Log Data  
files if required

Click these buttons to  
change display types

RTKNAVI ver.2.4.3 b34 (2)

2022/05/26 12:50:55.0 GPST

Lat/Lon/Height

Rover SYS

Solution: SINGLE

N: 28° 15' 18.3614"

E: 83° 58' 35.0876"

He: 940.740 m

N: 1.307 E: 1.365 U: 2.738 m

Age: 0.0 s Ratio: 0.0 #Sat: 40

SNR (dBHz)

GREJ CS

If you would like to get GNSS data from our lab, please send a request e-mail to  
[dinesh@csis.u-tokyo.ac.jp](mailto:dinesh@csis.u-tokyo.ac.jp)  
Note: This is subject to approval of the request and it will be dealt case by case.