Asian Base Station Network Project Report
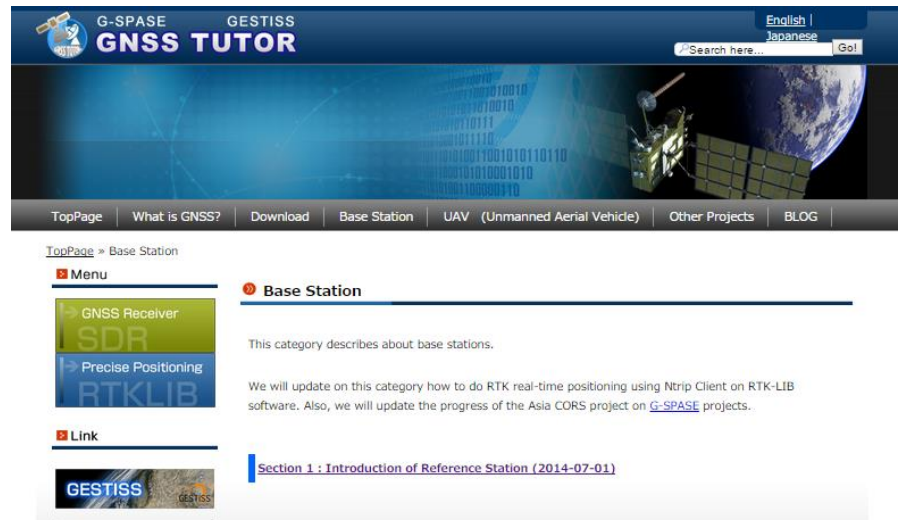
Hiroko Tokura

Objective and plan for this year

- Meeting at 6th June

- Making manuals (How to set up?)

  ⇒ update on the website

- Maintenance and Support
  - Portable base station
  - Lending GNSS devicies

Contents

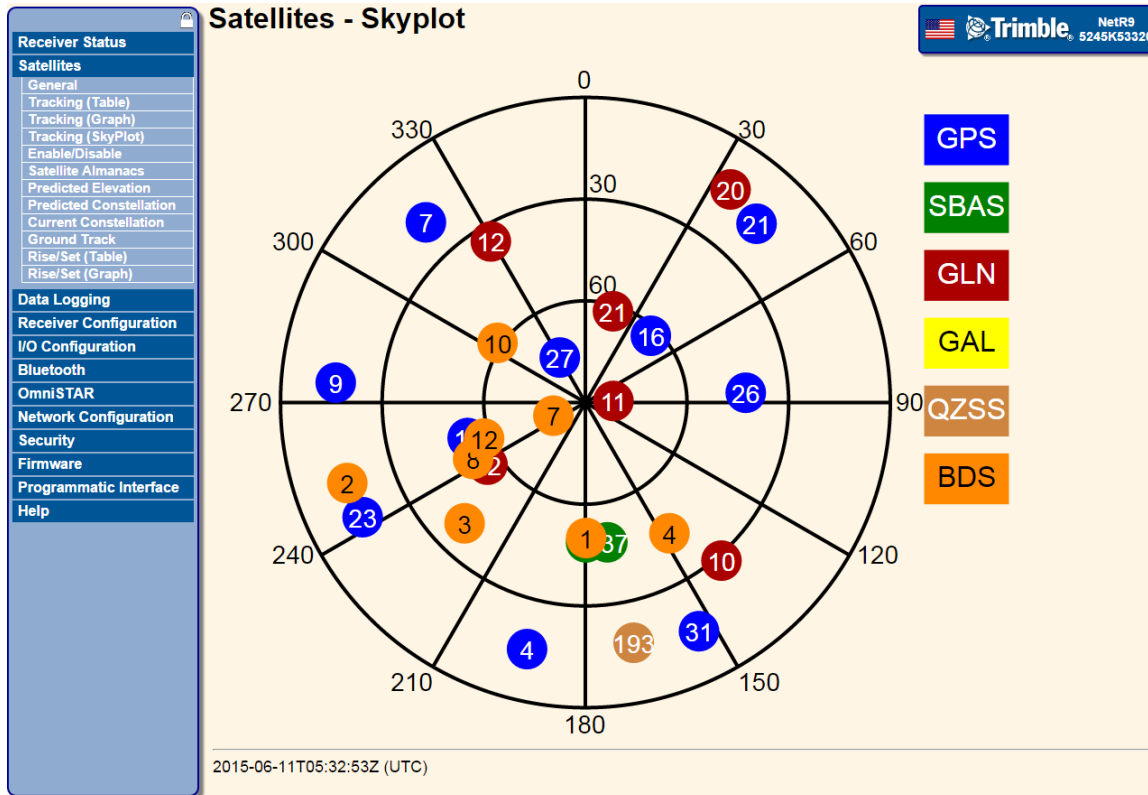- Short introduction about

    Settings for Base station and Rover

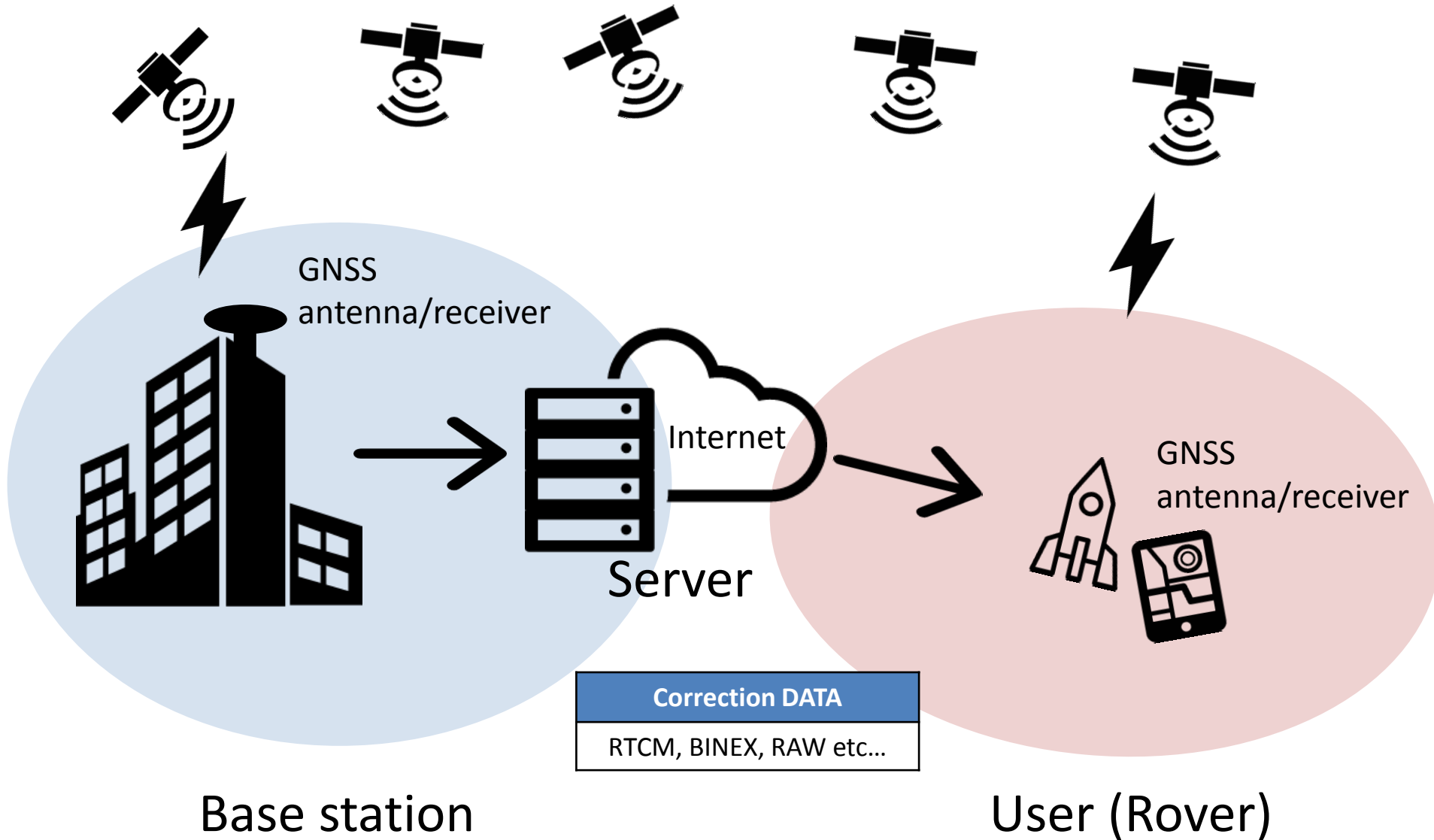   (a part of manuals)

- RTK-GNSS Demo

RTK-GNSS
(Global Navigation Satellite Systems) Settings for Base Station and Rover

Settings for Base station and Rover

What is RTK-GNSS ?

GNSS antenna/receiver

Internet

Server

GNSS antenna/receiver

Correction DATA
RTCM, BINEX, RAW etc…

Base station

User (Rover)

Contents

- Introduce
  - RTKLIB software package
  - NTRIP (Network Transport of RTCM data over IP)
- Settings for Base Station
  - Using STRSVR program from RTKLIB software package
- Settings for Rover
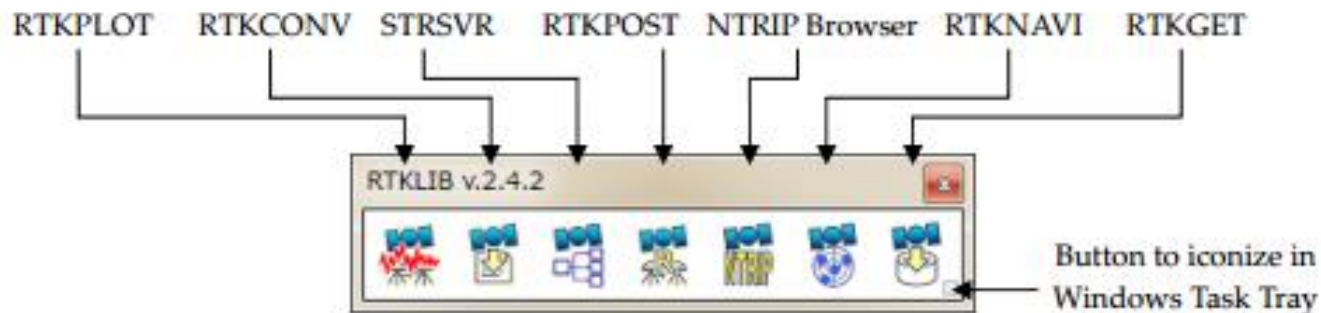 - Using RTNAVI program from RTKLIB software package

RTKPLOT   RTKCONV   STRSVR   RTKPOST   NTRIP Browser   RTKNAVI   RTKGET

RTKLIB v.2.4.2

Button to iconize in Windows Task Tray

Figure 3.1-1 RTKLAUNCH window and launcher icons for APs

RTKLIB software package

Requirements

Overview | Release Notes | Support | Documents | References | Porting to BB | To Do | Statistics | SDR Receiver

RTKLIB: An Open Source Program Package for GNSS Positioning

- Computer to run RTKLIB on
- GNSS receiver capable of providing raw data (such as U-blox) and connected to the computer
- GNSS antenna

For RTK-GNSS

- Access to the corrections from a base station in close range OR a second raw data GPS receiver and antenna to set up your own base station.

RTKLIB software package

Install RTKLIB

NTRIP (Network Transport of RTCM data over IP) Requirements
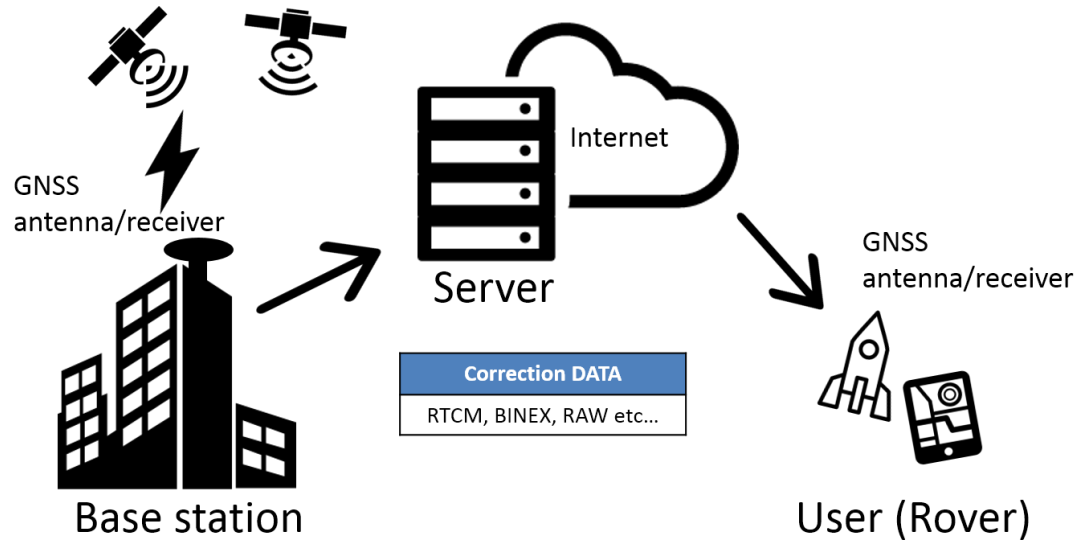
- Internet connection

 (typically cellular based, only requires 1-2 KB/second)

- RTK capable GPS Receiver

- Server IP address and login credentials for a system that can provide RTK correction data.

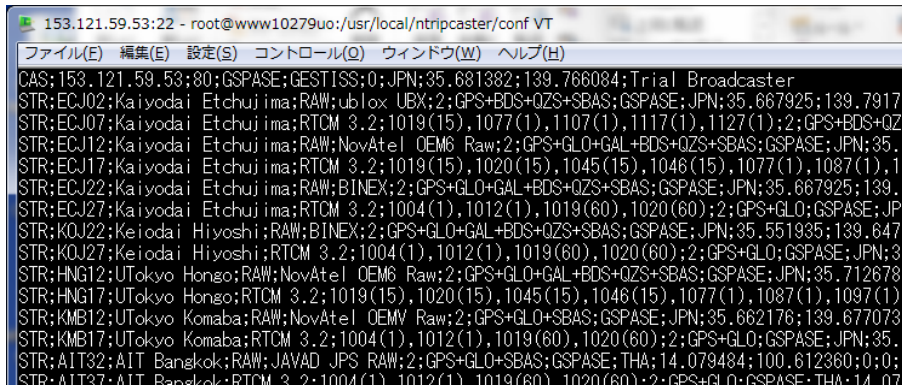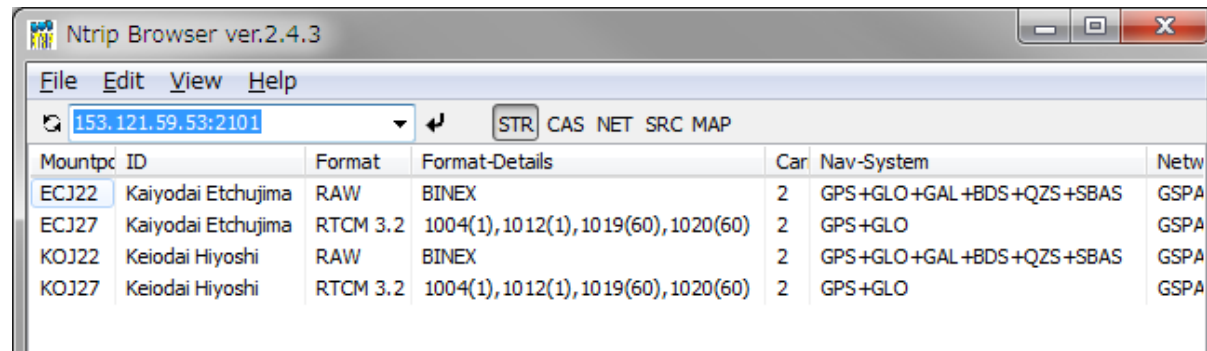# NTRIP (Network Transport of RTCM data over IP)

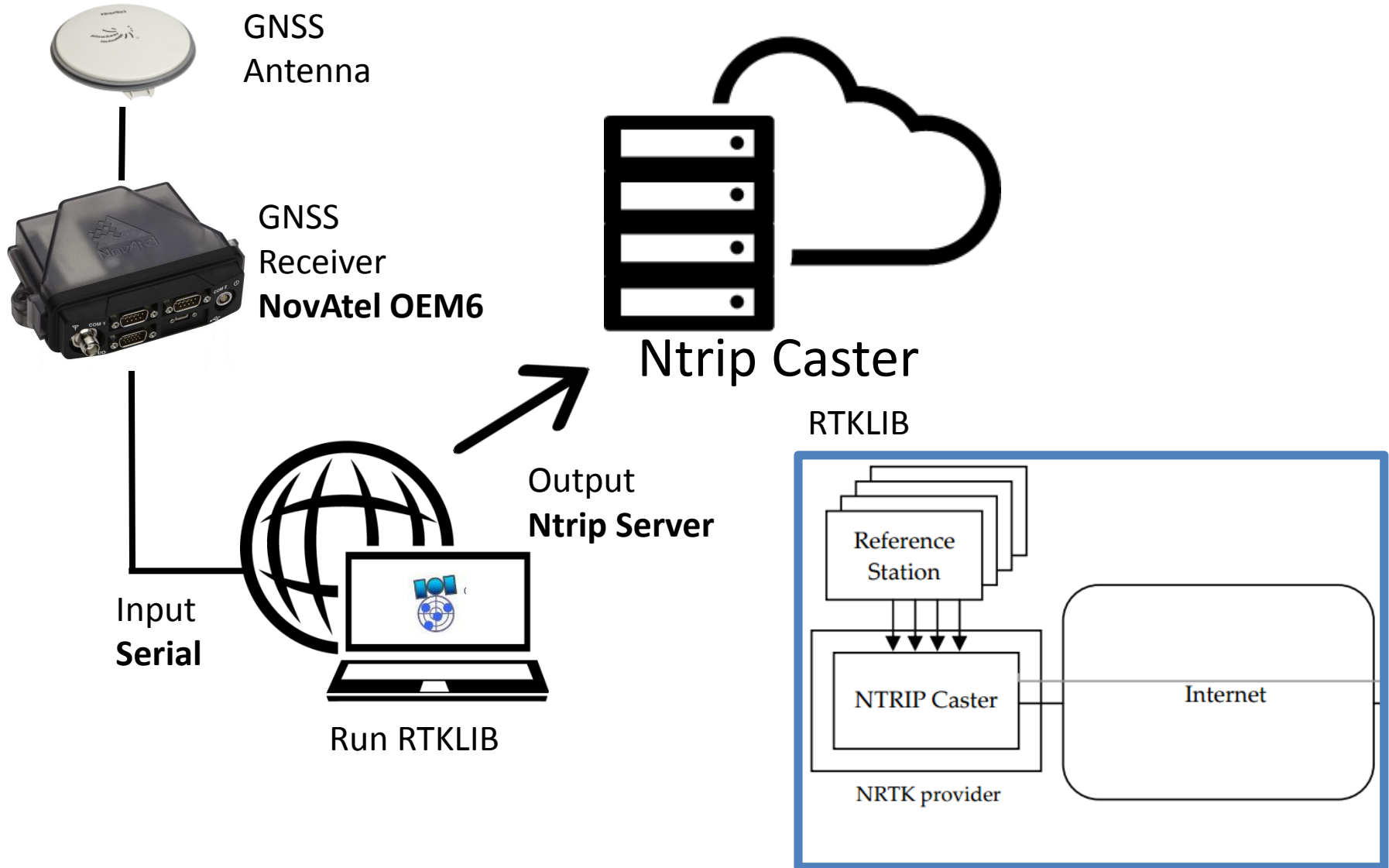## CORS

CORS(Continuously Operating Reference Stations)

observation data via the Internet

Tokyo(Univ. of Tokyo, Keio Univ., TUMSAT)
Bangkok(Thailand), Jakarta(Indonesia)

Tokyo

TUMSAT

Keio

Ntrip Browser ver.2.4.3

File   Edit   View   Help

153.121.59.53:2101   STR CAS NET SRC MAP

Mountpo	ID	Format	Format-Details	Car	Nav-System	Netw
ECJ22	Kaiyodai Etchujima	RAW	BINEX	2	GPS+GLO+GAL+BDS+QZS+SBAS	GSPA
ECJ27	Kaiyodai Etchujima	RTCM 3.2	1004(1),1012(1),1019(60),1020(60)	2	GPS+GLO	GSPA
KOJ22	Keiodai Hiyoshi	RAW	BINEX	2	GPS+GLO+GAL+BDS+QZS+SBAS	GSPA
KOJ27	Keiodai Hiyoshi	RTCM 3.2	1004(1),1012(1),1019(60),1020(60)	2	GPS+GLO	GSPA

```
153.121.59.53:22 - root@www10279uo:/usr/local/ntripcaster/conf VT
ファイル(F)  編集(E)  設定(S)  コントロール(O)  ウィンドウ(W)  ヘルプ(H)
CAS;153.121.59.53;80;GSPASE;GESTISS;0;JPN;35.681382;139.766084;Trial Broadcaster
STR;ECJ02;Kaiyodai Etchujima;RAW;ublox UBX;2;GPS+BDS+QZS+SBAS;GSPASE;JPN;35.667925;139.79176
STR;ECJ07;Kaiyodai Etchujima;RTCM 3.2;1019(15),1077(1),1107(1),1117(1),1127(1);2;GPS+BDS+QZS
STR;ECJ12;Kaiyodai Etchujima;RAW;NovAtel OEM6 Raw;2;GPS+GLO+GAL+BDS+QZS+SBAS;GSPASE;JPN;35.6
STR;ECJ17;Kaiyodai Etchujima;RTCM 3.2;1019(15),1020(15),1045(15),1046(15),1077(1),1087(1),10
STR;ECJ22;Kaiyodai Etchujima;RAW;BINEX;2;GPS+GLO+GAL+BDS+QZS+SBAS;GSPASE;JPN;35.667925;139.7
STR;ECJ27;Kaiyodai Etchujima;RTCM 3.2;1004(1),1012(1),1019(60),1020(60);2;GPS+GLO;GSPASE;JPN
STR;KOJ22;Keiodai Hiyoshi;RAW;BINEX;2;GPS+GLO+GAL+BDS+QZS+SBAS;GSPASE;JPN;35.551935;139.6470
STR;KOJ27;Keiodai Hiyoshi;RTCM 3.2;1004(1),1012(1),1019(60),1020(60);2;GPS+GLO;GSPASE;JPN;35
STR;HNG12;UTokyo Hongo;RAW;NovAtel OEM6 Raw;2;GPS+GLO+GAL+BDS+QZS+SBAS;GSPASE;JPN;35.712678;
STR;HNG17;UTokyo Hongo;RTCM 3.2;1019(15),1020(15),1045(15),1046(15),1077(1),1087(1),1097(1),
STR;KMB12;UTokyo Komaba;RAW;NovAtel OEMV Raw;2;GPS+GLO+SBAS;GSPASE;JPN;35.662176;139.677073;
STR;KMB17;UTokyo Komaba;RTCM 3.2;1004(1),1012(1),1019(60),1020(60);2;GPS+GLO;GSPASE;JPN;35
STR;AIT32;AIT Bangkok;RAW;JAVAD JPS RAW;2;GPS+GLO+SBAS;GSPASE;THA;14.079484;100.612360;0;0;
STR;AIT37;AIT Bangkok;RTCM 3.2;1004(1),1012(1),1019(60),1020(60);2;GPS+GLO;GSPASE;THA;14.07
```

Settings for Base station

Using STRSVR program from RTKLIB

GNSS Antenna

GNSS Receiver **NovAtel OEM6**

Ntrip Caster

Output **Ntrip Server**

Input **Serial**

Run RTKLIB

RTKLIB

Reference Station

NTRIP Caster

Internet

NRTK provider

Settings for Base station

Run STRSVR

- Rtklib_[ver.]-> bin-> rtklanch.exe

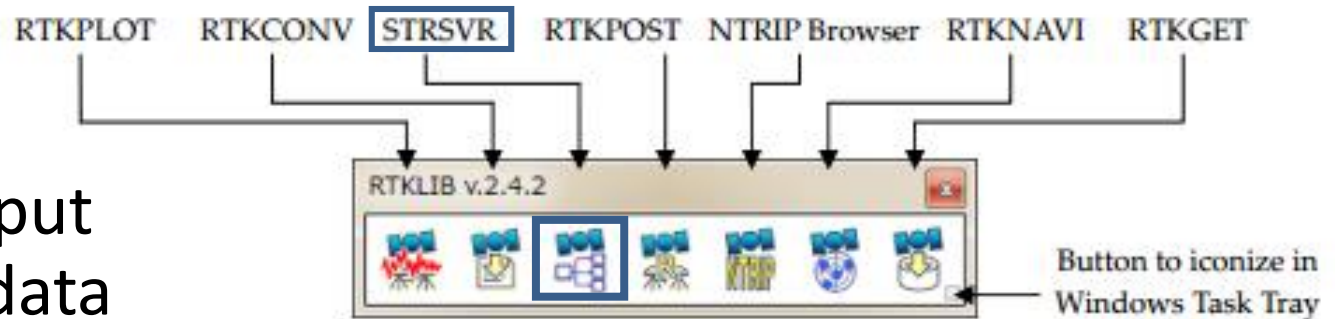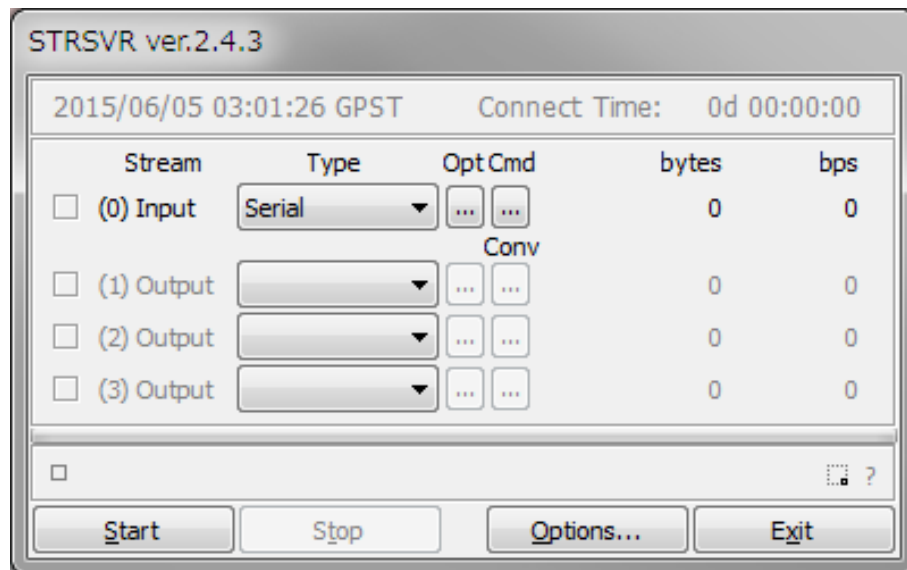- Configure input and output data stream

- Split data stream

Figure 3.1-1 RTKLAUNCH window and launcher icons for APs

Settings for Base station
Using STRSVR program from RTKLIB

Serial options

Loading file
OEM4_RTCM_1Hz

Serial commands

Ntrip Server options

Ntrip

Start ⇒ ECJ17

Run RTKNAVI

• Rtklib_[ver.]-> bin-> rtklanch.exe
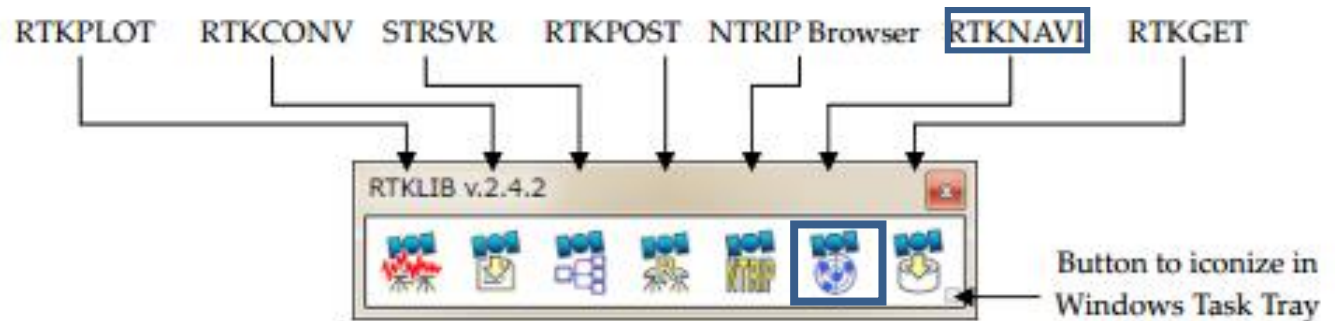
Figure 3.1-1 RTKLAUNCH window and launcher icons for APs
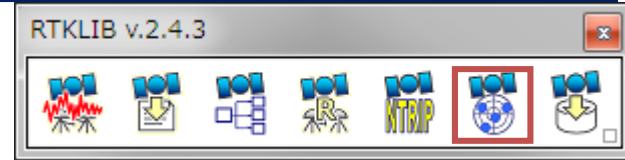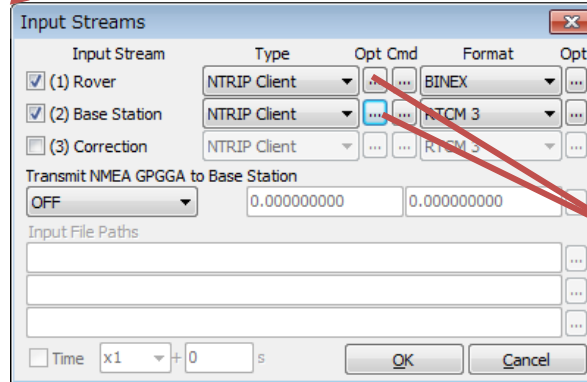
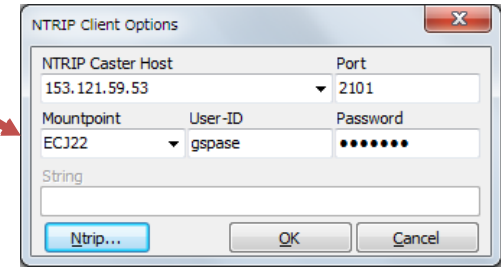• Real time positioning

• Saving data
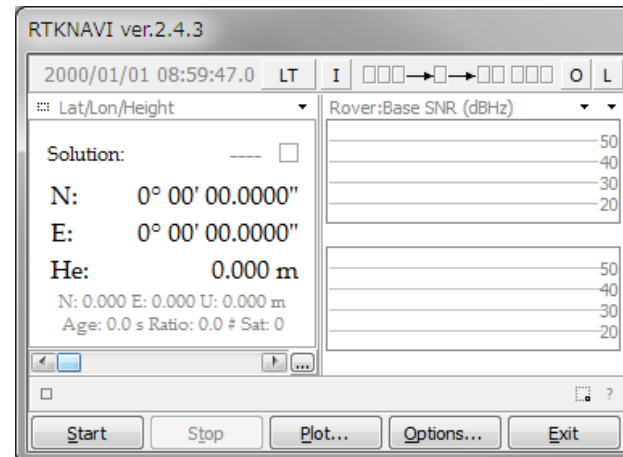
Settings for Rover
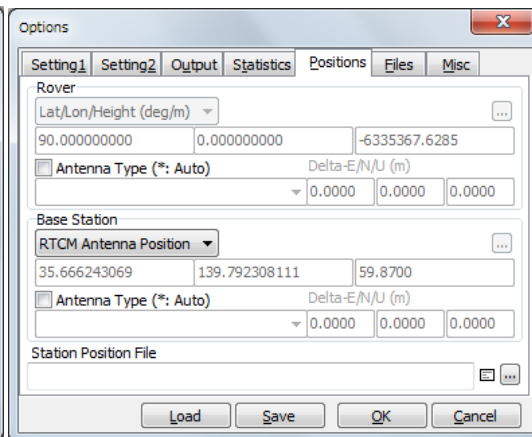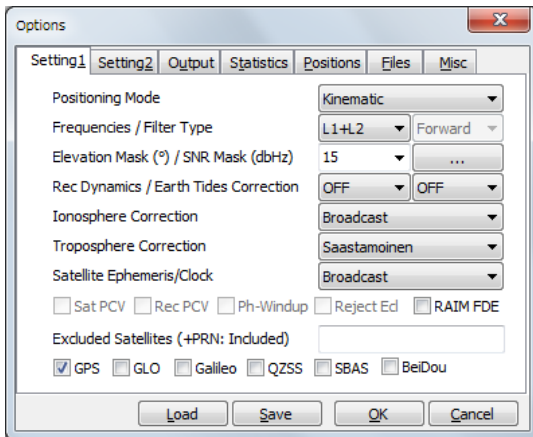
RTKNAVI.exe Base:ECJ27 rov:ECJ22
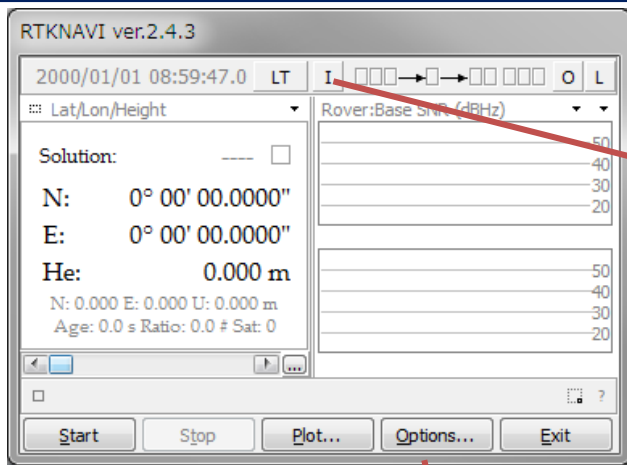
Input streams

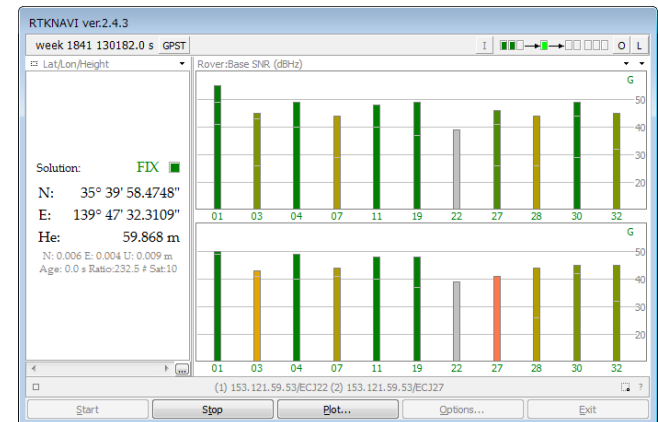接続オプション　それぞれ設定

Positioning options for RTK

Start⇒FIX RTK

RTK-GNSS Demo Configurations

Antenna

Receiver

Wi-fi Router

Windows tablet
(with RTKLIB)