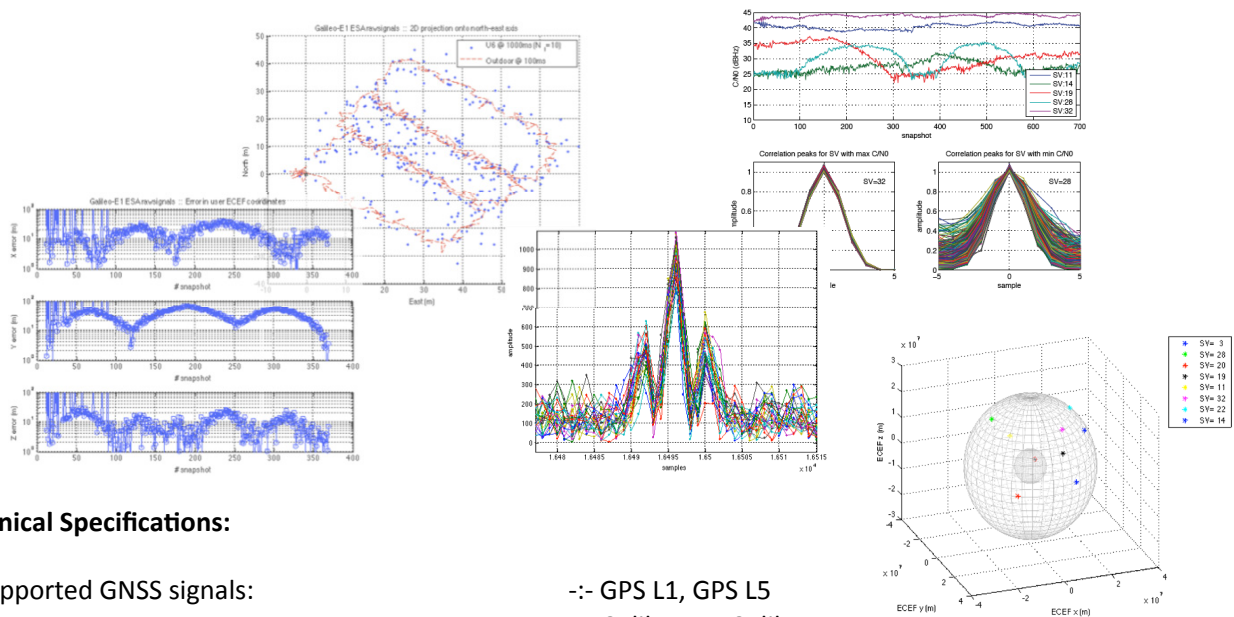


# HS-GNSS Software Receiver

Developed by SPCOMNAV-UAB under the  **esa** funded DINGPOS project



## Technical Specifications:

✦ Supported GNSS signals:

- :- GPS L1, GPS L5
- :- Galileo E1, Galileo E5a

✦ Main features:

- :- Snapshot receiver
- :- High-sensitivity signal acquisition
- :- Indoor operation via A-GNSS

✦ Functionalities:

- :- Extensive use of FFT processors for HS acquisition
- :- Selectable integration time
- :- Extended correlations with advanced non-coherent integration
- :- Selectable linear / quadratic interpolation
- :- Selectable fine acquisition / algebraic refinement

✦ Ephemerids and A-GNSS capabilities:

- :- Imports YUMA almanac files
- :- Imports RINEX navigation files
- :- Accepts assistance information from LBS
- :- Imports XML formatted data compliant with 3GPP RRLP

- ✦ Signal quality monitoring:

  - :- C/N0 monitoring for visible SV
  - :- Near-far detection
  - :- Interference mitigation
  
- ✦ Input signal interface:

  - :- Real-valued IF samples
  - :- Complex-valued baseband samples
  - :- User-defined IF and sampling frequencies
  
- ✦ User interface:

  - :- Structure-oriented configuration file
  
- ✦ Output interface:

  - :- Matlab plots
    - 3D plot with SV position
    - SV correlation peaks
    - SV estimated C/N0
    - Estimated user's trajectory
    - Estimated user's TOW
  - :- Log file @ snapshot rate
    - SV p-range
    - SV estimated Doppler
    - SV estimated position in ECEF coordinates
    - Estimated user's position and time
  
- ✦ Position fixes:

  - :- Push-to-fix receiver implementation
  - :- No time stamp is required for position fixes
  - :- No navigation bits are required for position fixes
  - :- Coarse reference position with uncertainty up to 75km
  - :- Correction of ionospheric/tropospheric errors
  
- ✦ Acquisition performance:

  - :- Sensitivity of 15dBHz  
(90% detection, 5% false alarm, 3 sec. integration)
  
- ✦ Optional software extensions:

  - :- GNSS signal generator
  - :- Multipath analysis tool
  - :- GoogleMaps representation tool
  
- ✦ Software requirements:

  - :- Matlab 6.0 or higher  
(with signal processing and statistics toolboxes)
  
- ✦ Hardware requirements:

  - :- CPU at 1.6GHz (or higher)
  - :- RAM of 2GB (or higher)