The constellation data was obtained with a Spectracom GSC-64 simulator, covering 4 GNSS systems: GPS,Galileo, Beidou-2/Compass and Glonass.

The Matlab *mat file contains 50000 random constellations, stored in the following variables

Store_user_coord = a matrix of 50000 x 3 values, showing the user coordinates on Earth (x, y, z) in WGS84 coordinate system for each of the randomly generated 50000 points on Earth. The points on Earth are generated according to a uniform distrubution, drawn from various latitude-longitude values and within any day of any month arbitrarily chosen in 2014. Thee information about the day of the month were the data was generated is not stored, as the purpose of such a data is to generate viable constellation data that can be use in multi-GNSS studies.

Store_svinview_coord = a cell of size 50000 x 4 containing the (x,y,z) coordinates of the satellites in view according to WGS84 coordinate system:

Store_svinview_coord{i,1} shows the coordinates of the GPS satellites in view, for any i=1, ..., 50000

Store_svinview_coord{i,2} shows the coordinates of the Galileo satellites in view, for any i=1, ..., 50000

Store_svinview_coord{i,3} shows the coordinates of the Beidou-2/Compass satellites in view, for any i=1, ..., 50000

Store_svinview_coord{i,4} shows the coordinates of the Glonass satellites in view, for any i=1, ..., 5000

Store_rxpow = is a 1x50000 cell, with each element a structure of the following type, containing the powers per signal and per system of each satellite in view

gps: [1x1 struct]

galileo: [1x1 struct]

beidou: [1x1 struct]

glonass: [1x1 struct]

For example, Store_rxpow{1}.gps.L1CA will show the received powers on L1 band, C/A signal coming from 12 GPS satellites in view at the first random point (in dBW), the Store_rxpow{13}.gps.L1CA will show the received powers on L1 band, C/A signal coming from 10 GPS satellites in view at the 13-th random point, etc.

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1. G.N. Ferrara, J. Nurmi and E.S. Lohan, "Multi-GNSS analysis via Spectracom constellations", in Proc. of the International Conference on Localization and GNSS (ICL-GNSS 2016), Barcelona, Spain, June 2016.