

# CHAMP

## RINEX format observable extensions for CHAMP SST Data

CHAMP GPS SST Data are given in the conventional **RINEX-2 format, version 2.10**. That means, the observables **L1, L2, C1, P1, P2, S1, S2** are given as in standard RINEX. Here **L1** is actually "Carrier phase measurement on CA channel", which is always available. Additionally, we use the following two new observables:

- **LP1** phase measurement on L1 (which is output only, if P1 enabled)
- **SA SNR** for CA channel

The **LLI-** and **Antispoofing** flags are not present (blank), since both are not given in the BlackJack data. The **Signal Strength** flag is also not present (blank).

### Example

| 2          |    | OBSERVATION DATA |    |    |            |     |    |    | GPS               |                 | RINEX VERSION / TYPE |               |  |
|------------|----|------------------|----|----|------------|-----|----|----|-------------------|-----------------|----------------------|---------------|--|
| gps-filter |    | wolfk            |    |    |            |     |    |    | today             |                 | PGM / RUN BY / DATE  |               |  |
| 1          | 1  | 0                |    |    |            |     |    |    | WAVELET FACT L1/2 |                 |                      |               |  |
| 9          | L1 | L2               | C1 | P1 | P2         | LP1 | SA | S1 | S2#               | TYPES OF OBSERV |                      |               |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | END OF HEADER |  |
| 00         | 3  | 28               | 8  | 4  | 10.0000000 | 0   | 4  | 9  | 4                 | 5               | 6                    |               |  |
|            |    |                  |    |    | 0.805      |     |    |    |                   |                 |                      | 0.985         |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80792838.388 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80792834.826 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80792720.742 |  |
|            |    |                  |    |    | 0.807      |     |    |    |                   |                 |                      | 518.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 187.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 112.000       |  |
|            |    |                  |    |    | 0.624      |     |    |    |                   |                 |                      | -80063464.706 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80063459.626 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80063337.790 |  |
|            |    |                  |    |    | 0.624      |     |    |    |                   |                 |                      | 336.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 68.000        |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 39.000        |  |
|            |    |                  |    |    | 0.489      |     |    |    |                   |                 |                      | -82835108.000 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -82835107.996 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -82835028.673 |  |
|            |    |                  |    |    | 0.490      |     |    |    |                   |                 |                      | 973.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 644.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 494.000       |  |
|            |    |                  |    |    | -0.780     |     |    |    |                   |                 |                      | -80154230.061 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80154219.747 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80154091.305 |  |
|            |    |                  |    |    | -0.778     |     |    |    |                   |                 |                      | 347.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 90.000        |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 68.000        |  |
| 00         | 3  | 28               | 8  | 4  | 20.0000000 | 0   | 4  | 9  | 4                 | 6               | 5                    |               |  |
|            |    |                  |    |    | 26435.462  |     |    |    |                   |                 |                      | 20599.360     |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80787807.273 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80787807.959 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80787695.383 |  |
|            |    |                  |    |    | 26435.462  |     |    |    |                   |                 |                      | 518.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 184.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 107.000       |  |
|            |    |                  |    |    | 345.946    |     |    |    |                   |                 |                      | -80063400.011 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80063384.517 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80063262.859 |  |
|            |    |                  |    |    | 345.948    |     |    |    |                   |                 |                      | 314.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 65.000        |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 35.000        |  |
|            |    |                  |    |    | -36097.838 |     |    |    |                   |                 |                      | -28127.993    |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80161099.031 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -80161089.872 |  |
|            |    |                  |    |    | -36097.835 |     |    |    |                   |                 |                      | 342.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 93.000        |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 67.000        |  |
|            |    |                  |    |    | 2382.554   |     |    |    |                   |                 |                      | 1856.899      |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -82834654.526 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -82834655.810 |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | -82834573.194 |  |
|            |    |                  |    |    | 2382.555   |     |    |    |                   |                 |                      | 965.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 626.000       |  |
|            |    |                  |    |    |            |     |    |    |                   |                 |                      | 484.000       |  |

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