Combination on Normal Equation Level

- To fully take into account correlations between gravity field, orbit, instrument and stochastic parameters, solutions have to be combined on normal equation level.

- All NEQs are based on common standards on reference frames, Earth orientation, relativity, and third bodies.

- Processing approaches, parametrization and background models are not harmonized.

Combination on NEQ-level is the special thing about the EGSIEM combination service!!!

NEQ-Format: SINEX

The information is stored in the following blocks:

- FILE/REFERENCE
- FILE/COMMENT
- SOLUTION/STATISTICS
- SOLUTION/ESTIMATE
- SOLUTION/APRIORI
- SOLUTION/NORMAL_EQUATION_VECTOR
- SOLUTION/NORMAL_EQUATION_MATRIX

SINEX: COMMENT and STATISTICS

- FILE/COMMENT:
  - earth_gravity_constant   3.9860044150e+14
  - radius   6.3781363000e+06
  - tide_system   zero_tide / tide_free

- SOLUTION/STATISTICS
  - NUMBER OF OBSERVATIONS   540481
  - NUMBER OF UNKNOWNS   8277
  - NUMBER OF DEGREES OF FREEDOM   532204
  - WEIGHTED SQUARE SUM OF O-C   5.1761025e+05

Horizon2020

SINEX: Data

- SOLUTION/ESTIMATE
  - 1 CN   2 --   0 06:016:43200 ---- 2 -4.84169160788564e-04 1.39923e-11
  - 2 CN   2 --   1 06:016:43200 ---- 2 -3.41480150232469e-10 8.80419e-12
  - 3 SN   2 --   1 06:016:43200 ---- 2 1.46383672520029e-09 8.37504e-12

- SOLUTION/APRIORI
  - 1 CN   2 --   0 06:016:43200 ---- 2 -4.84169219812195e-04
  - 2 CN   2 --   1 06:016:43200 ---- 2 -2.87591948230532e-10
  - 3 SN   2 --   1 06:016:43200 ---- 2 1.47690500410210e-09

- SOLUTION/NORMAL_EQUATION_VECTOR
  - 1 CN   2 --   0 06:016:43200 ---- 2 4.04254781162723e+11
  - 2 CN   2 --   1 06:016:43200 ---- 2 -6.85974043792560e+11
  - 3 SN   2 --   1 06:016:43200 ---- 2 7.71101358350703e+10