In this directory the SINEX files of the CODE contributions to the IERS
Working Group "Combination at Observation Level" (WG-COL) are located. At
the moment, two types of contributions are available:

1) Daily GNSS solutions (combined GPS+GLONASS analysis)
   21 SINEX files:

   cod08DDDpd01.n1.Z (with DDD = 223,224,...,243)

2) Weekly SLR solutions (using Lageos-1/-2 data)
   3 SINEX files (version 3):

   cod08223lw01.n3.Z (week 1492, DoY 223-229)
   cod08230lw01.n3.Z (week 1493, DoY 230-236)
   cod08237lw01.n3.Z (week 1494, DoY 237-243)

   The earlier submission (version *.n2.Z) was without adoption of the
unified models within WG COL (agreement on WG COL meeting in Munich,
December 2010). Please use the files labeled with "n3" for your analysis in
order to be consistent with the other submissions.

General remarks:

The analysis summary file is located in this directory, too:
   COL_analysis_summary_AIUB.xls
It contains a detailed description of the GNSS and SLR analysis.
The solutions follow the agreement concerning the a priori models taken at
the WG COL meeting in Munich in December 2010.

The files are labeled "COD" (instead of "AIU") because the solutions result
from the GNSS and SLR processing performed in the framework of the CODE
activities at AIUB.

The Bernese GPS Software was used for the processing. Please refer to Dach
et al. (2007). An extended version - as it is running at AIUB for the IGS
processing - was used for the GNSS analysis, and the SLR development
version was used for the SLR analysis.

The SINEX files contain the unconstrained normal equation system (normal
equation matrix and normal equation vector) including the a priori values
and corresponding statistical information. Additionally, a solution vector
is provided.

Weekly SLR solution:

- Lageos-1/-2 data are included
- Derived from an SLR processing at AIUB together with BKG
- Following the specifications of the ILRS Analysis Working Group (AWG)
- Bernese GPS Software, SLR development version (see Thaller et al., 2009)
- Weekly SINEX files

Parameters included:
- Station coordinates
- Polar motion parameterized as offset+drift (24-hour resolution)
- UT1-UTC, LOD (24-hour resolution)

- Geocenter coordinates
- Range biases for some stations (according to the specifications by the ILRS AWG); as one common range bias for both LAGEOS satellites

---

Daily GNSS solution:

- Combined GPS+GLONASS analysis
- Derived from a GLONASS reprocessing at CODE (see Dach et al., 2010)
- Bernese GPS Software, version 5.1 (as it is running at AIUB)
- Daily SINEX files

Parameters included:
- Station coordinates
- Polar motion (24-hour resolution)
- UT1-UTC (24-hour resolution)
- Nutation (24-hour resolution)
- Troposphere zenith delays (2-hour resolution)
- Troposphere gradients (24-hour resolution)

Please note that the EOPs are parameterized as 24-hour piece-wise linear polygon, i.e., the daily SINEX files contain two "offsets" (at 00:00 UTC and 24:00 UTC) instead of offset and drift parameters. Therefore, LOD is implicitly contained in the polygon for UT1-UTC, polar motion rates are implicitly contained in the pole coordinates, and nutation rates are implicitly contained in the nutation angles.

Compared to CODE's processing for the IGS (see CODE, 2010), the contribution to the WG-COL differs regarding the following issues:
- Daily orbital arcs (instead of 3-day arcs)
- Daily SINEX (instead of weekly)
- Normal equations contained in SINEX (instead of co-variances)
- Troposphere parameters included in SINEX
- Satellite antenna offsets not included in SINEX
- Nutation included in SINEX

References:

CODE (2010): CODE Analysis Strategy Summary for the International GNSS Service (IGS). Available at:
ftp://ftp.unibe.ch/aiub/CODE/0000_CODE.ACN

Dach R., U. Hugentobler, P. Fridez, M. Meindl (eds.) (2007): Bernese GPS Software Version 5.0. Astronomical Institute, University of Bern, Bern, Switzerland.

Dach R., R. Schmid, M. Schmitz, D. Thaller, S. Schaer, S. Lutz, P. Steigenberger, G. Wübbena, G. Beutler (2010): Enhanced antenna phase center models for GLONASS solutions. Submitted to GPS Solutions.

Thaller D., M. Mareyen, R. Dach, W. Gurtner, G. Beutler, B. Richter, J. Ihde (2009): Preparing the Bernese GPS Software for the analysis of SLR observations to geodetic satellites. In: Schillak S. (ed.), Proceedings of the 16th International Workshop on Laser Ranging, Space Research Center, Polish Academy of Sciences, Poznan, Poland.