The IERS Working Group on Combination at the Observation Level (COL-WG) has been originated in 2009. Its main objective is to perform the combination of space geodetic techniques – mainly the Very Long Baseline Interferometry (VLBI), the Satellite Laser Ranging (SLR), the Global Navigation Satellite Systems (GNSS) and the Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS) – consistently on the level of observations and/or normal equations (NEQs). The Working Group is organized in this way, that some of the participating groups act as analysis centres providing NEQs resulting from the analysis of technique-specific observation data. For the first time in IERS also NEQs derived from a combined orbit adjustment of two techniques (SLR and DORIS, SLR and GNSS) are considered. The provided NEQs are then compared and combined by two combination centres.

The major tasks of the Working Group are to develop strategies for the combination of the different techniques and types of input data as well as methods for the validation of the combination results. In order to obtain combination products of high accuracy the homogeneous processing of the observation data – using the same reduction models and parameterizations - is an important precondition. Thus, the first action of the COL-WG was to organize an inter-comparison campaign in order to homogenize the software packages used. The period chosen extends over the intensive CONT08 VLBI period which took place from 12 to 26 August 2008.

The combination is based on common parameters: station coordinates, Earth Orientation Parameters, orbit parameters and tropospheric parameters. Additional parameters, such as for example the low spherical harmonic coefficients of the gravity field are also of interest and will be included at a later stage. The paper presents the objectives and strategy of this Working Group and describes the present status of the activities.