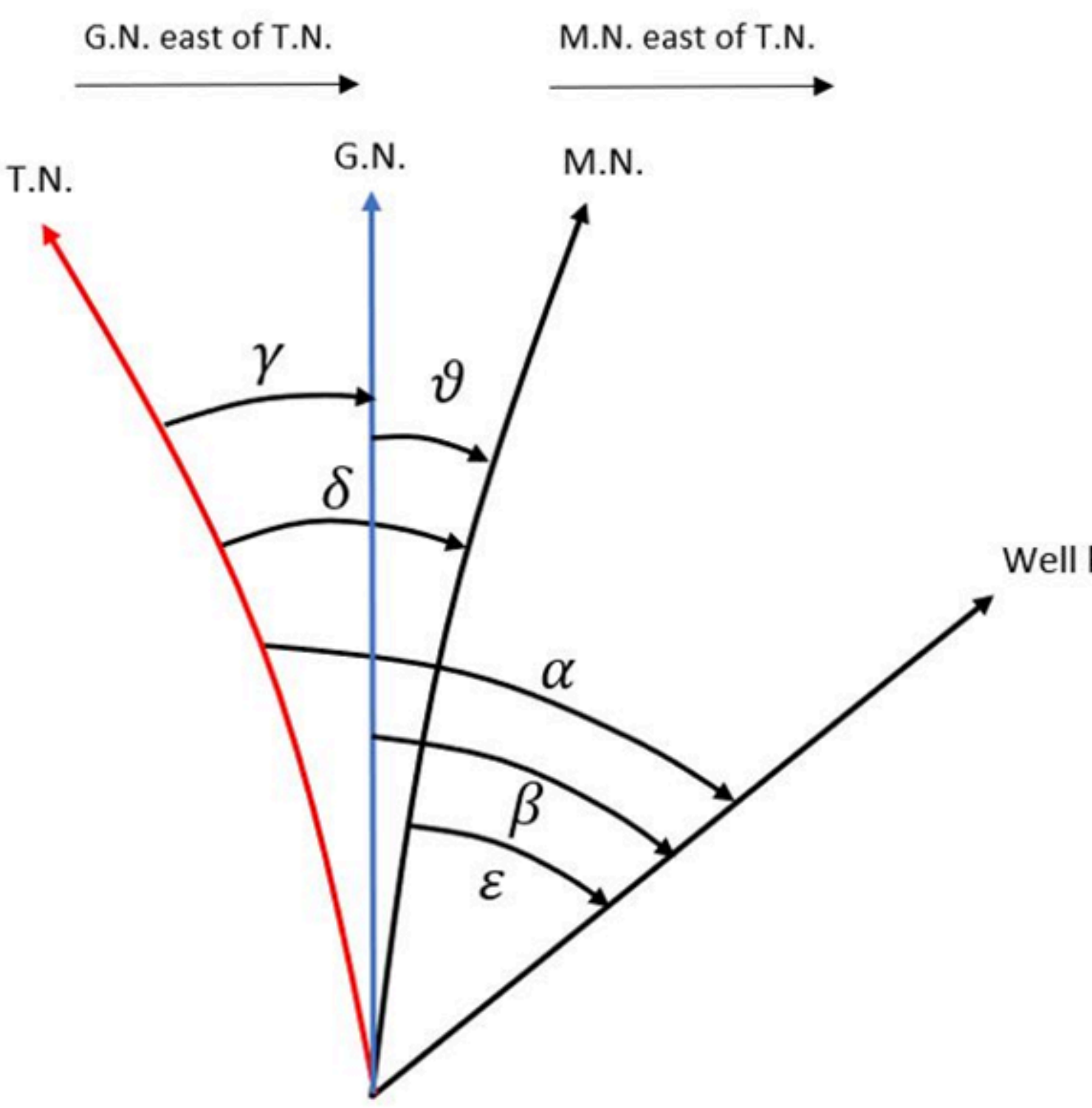
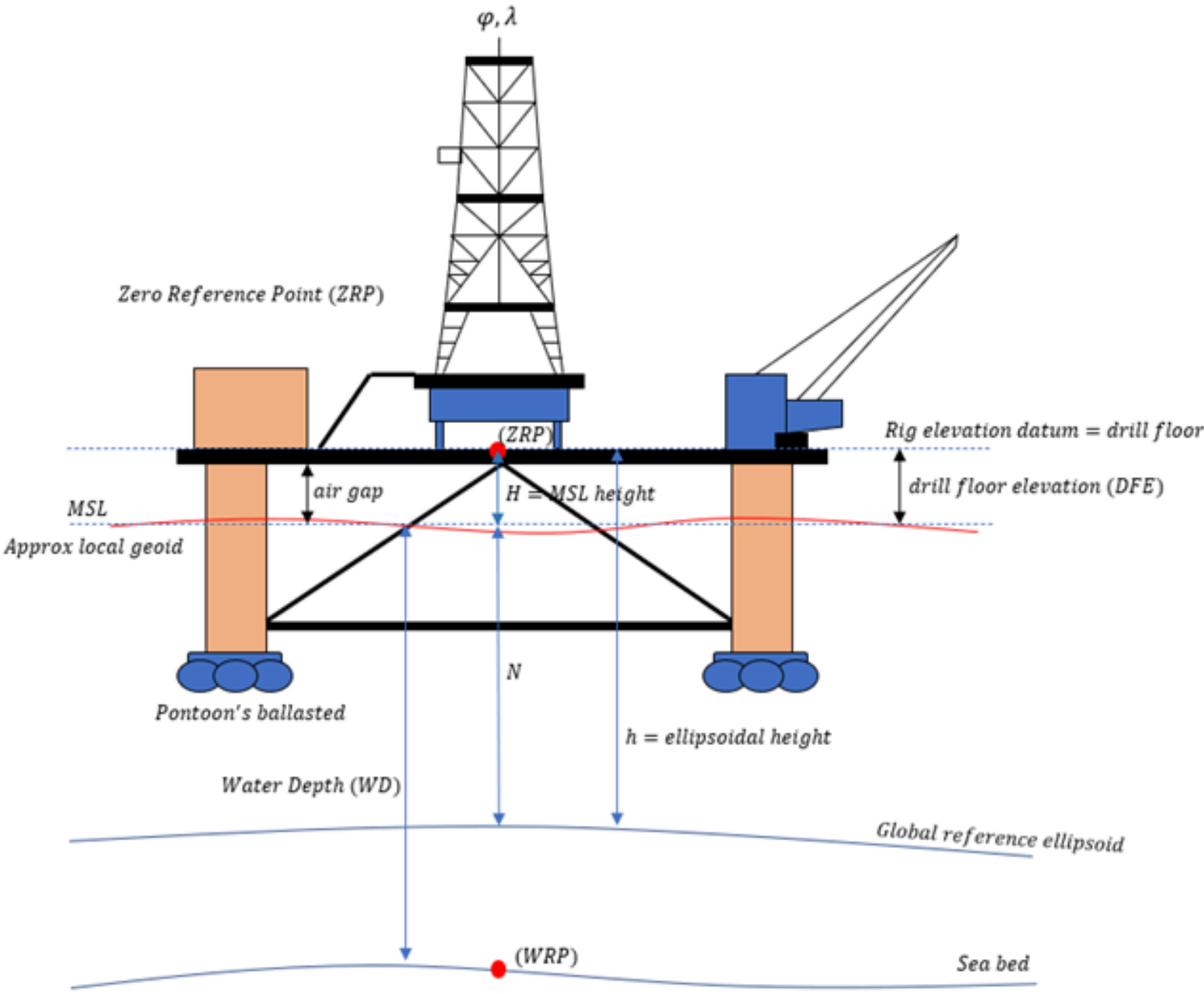
Wellbore Positioning & Trajectory QC

When designing and drilling a wellbore it is imperative to understand the HSSE, environmental and economic risks that potential errors in the geo-spatial positioning data may introduce. Our wellbore data management services use our in-house tools and matured workflows to perform a tried and trusted quality assurance procedure to identify geo-spatial concerns. This ensures all angular corrections and linear corrections that play a significant role in computation of the wellbore path are representative. Understanding the effects introduced by grid convergence, magnetic declination plus point and line scale factors.

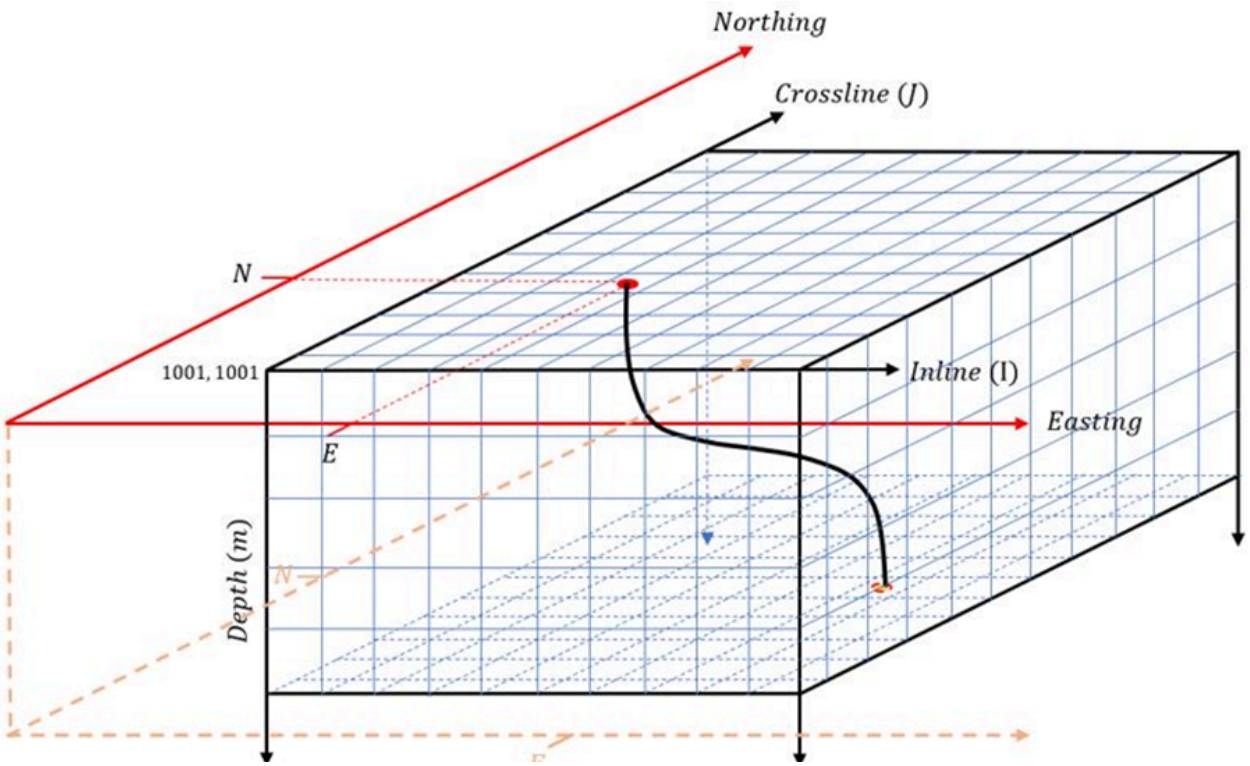


The horizontal and vertical coordinate reference systems used to describe the geo-spatial data are critical to ensuring the wellbore top hole and bottom hole locations are correct. Mis-ties between seismic trace data and wellbore survey data can occur because of both horizontal and vertical positioning errors. Our expertise in geodetic / geomatic engineering ensures all datums associated with the wellbore survey data are correct.



The top hole well header position is typically selected by the project team from either seismic 2D or 3D data volume. Positioning problems associated with the seismic data will manifest themselves directly on the well header coordinates. Therefore, prior to the well being spudded an audit trail of the proposed well locations must be conducted involving each stage of the data lifecycle, from acquisition to data loading to geo-hazard survey and rig move.

This ensuring any changes to the well header coordinates, caused by modifications to the coordinate reference system are documented for each stage of the data life cycle. It is positioning problems associated with the first 30% of the wellbore trajectory that are likely to have the biggest impact on preventing collisions with existing wellbore through careful anti-collision modelling. Generating cones of uncertainty along the wellbore is part of the QC processes undertaken.



Surface and trajectory verification checks (of legacy and new well data) that follow a thorough QA/QC process is essential to determining the best estimates of the final bottom hole location and the path followed by the wellbore from the surface to the target. Merging wellbore data into seismic 3D volumes is part of every project. Ensuring the project teams do not lose time in attempting to resolve horizontal and vertical mis-ties or issuing connect the anti-collision modelling is the cornerstone of our geo-spatial QC processes. Again, compliance with industry standard file exchange formats aids the automation of these processes and thus the reduction in time to conduct the QA/QC workflows. Our tools follow the guidance notes published by IOGP and encoding all data to the P7/17 exchange format.

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