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## Short Review of True-North Alignment Method on the Field Demonstrating the benefits of the use of an Optical Gyrocompass

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To install a seismometer with a properly defined orientation - inside a vault or into a borehole - as a single station including various instruments or as a part of an array - an 'adequate' tool and an 'absolute' reference are needed.

In the past, and sometimes it persists nowadays, magnetic North have been used as a reference for Z-orientation of seismic station. Several studies have extensively measured the orientation error that have been made with this method, using an optical gyrocompass providing True-North as a reference, and their work will be summarized here.

In these studies, optical Gyrocompass is said to be the good solution, even if it is too heavy, expensive, and difficult to export. This paper will explain how iXblue has overcome these limitations to design the new-born Seistans Optical Gyrocompass.

Moreover, to aim True-North with a reliable accuracy is not the only think you need to do on the field. The method to transfer the North-line from the gyrocompass to the instrument to aligned must not induce errors that ruined the accuracy obtained using state-of-the-art gyrocompass. So an exhaustive study of the different ways to transfer the orientation from the compass to the aligned sensor will be presented, and corresponding added uncertainty will be evaluated, which is a good way to promote good practice on the field.

Finally, some figures will be gathered and shared from literature to quantify the precision needed for the alignment of a seismic sensor. There are today so few papers about this important matter that it is worth to spread their information.