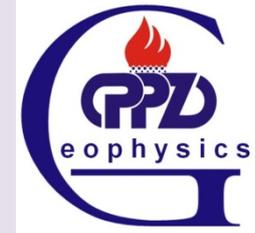
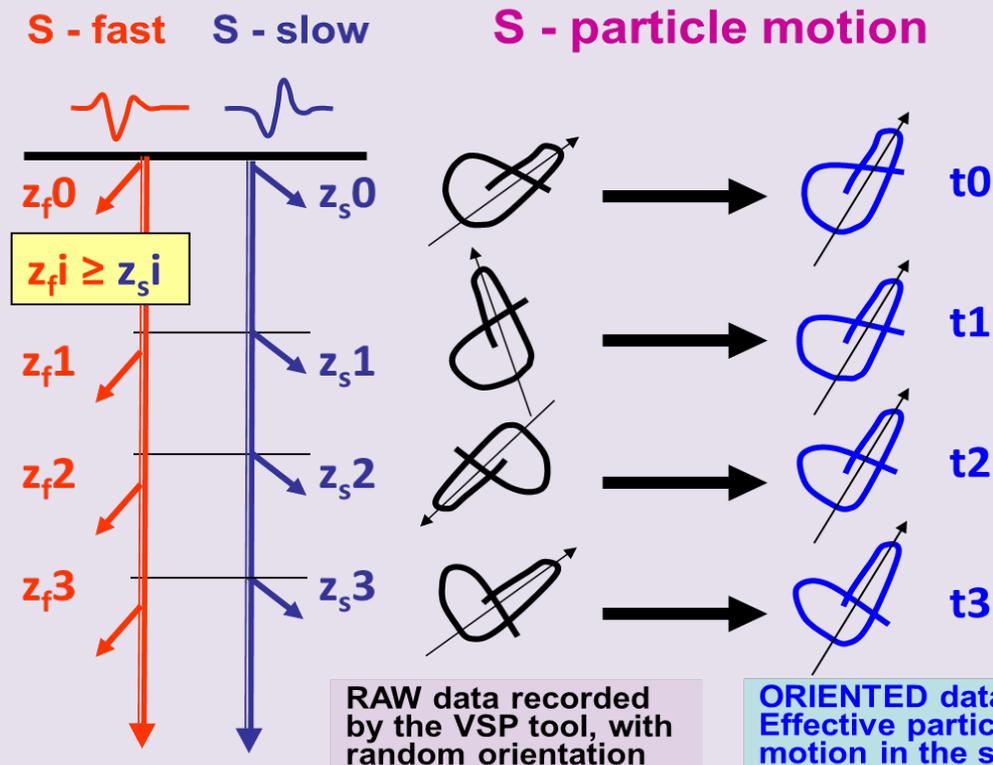


**PO01 - Orientation Method for onshore 3-C geophone VSP's recorded with a Relative Bearing sensor in partially low deviated holes.**

**Example of 3C VSP orientation based on physical coherency of high amplitude S-wave waveform**



## Orientation process of adjacent VSP levels



The arrow points to an amplitude extremum within a time window defined over the S-wave direct arrival

***INNOVATIVE procedure:***  
**Prior to orientation, the time window selected over the direct arrival is picked *with high precision* on a combined signal invariant with respect to the axes orientation, such as, for example, the modulus signal  $M(t)$ :**

$$M^2(t) = X^2(t) + Y^2(t)$$