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# Considerations for improved Integration of Geodetic Techiques

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The most demanding goal for the GGOS initiative is the definition of station positions to an accuracy of 1 mm and the corresponding velocities to 0.1 mm/year. Fundamental stations are corner stones for the geodetic reference frames because they are collocating and combining the relevant measurement techniques. However, this requires unprecedented control over local ties, intra- and inter- technique biases. The unperturbed distribution of frequency is an important requirement for all the space geodetic techniques. The distribution of time without jitter has importance for laser time transfer applications such as T2L2 and in the future ELT with ACES on the ISS. The timing system of the Geodetic Observatory Wettzell is based on a radio frequency (5 MHz) distribution scheme and a grid of coaxial cables. Uncontrolable fluctuations in the electrical ground potential and variations in the dielectric properties of these transmission lines give rise to jitter and most likely even small systematic measurement errors. Modern frequency transfer concepts differ from these earlier methods by employing active delay compensation by utilizing control loops in tight (high bandwidth) feedback systems. Furthermore they work on much higher frequencies from hundreds of megahertz up to the optical regime. The definition of a new timing system for Wettzell based on compensated signal transmission lines and the evaluation of the end to end properties of such concepts is work in progress for the coming years with the aim to create a truly common clock for all space geodetic techniques on the Geodetic Observatory Wettzell. This talk will introduce the important aspects and the potential of this next generation of timing systems.