
Analysis and Simulation how to extract raw data using the failure of atmospheric meteorological satellite positioning signal

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Nowadays, with the advancement of technology, the appreciable role of satellites and GPS satellite systems can be observed by introduction of their modern usages to develop various sciences. During last 10 years, modern uses of this system in the non-navigation fields have been introduced and illustrated. The GPS radio occultation method has been an operational method for extraction of the atmospheric parameters in recent years. In this method, a receiver is connected upon a flight area near earth orbit. GPS signal is deflected and curves when crossing the earth atmosphere and then reaches to receiver. It's possible to extract atmospheric parameters by analyzing phase information and carrier amplitude of the traced signal. In the aerology debates, the application of the GPS satellite systems is specified in the extraction of atmospheric parameters such as temperature, pressure and humidity. In this thesis, firstly we introduce the methods of atmospheric parameters extraction and compare radiosonde system and occultation and GPS system, and then the occultation and the quality of extraction of atmospheric parameters has been explained. In the following, the simulation of occultation scenario has been noted. Circuit parameters transmitted to the module prepared in MATLAB for extraction of temperature, pressure and humidity parameters, and eventually the precision of atmospheric diagrams earned simulation by radiosonde system have been evaluated.

Keywords : : atmospheric refraction, positioning satellites, radio occultation, remote sensing earth's atmosphere