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SPACE TECHNOLOGY APPLICATIONS – INTEGRATION GEOTECHNICAL INVESTIGATION AND SPACE TECHNOLOGY ENVIRONMENT

Abstract

It is obvious that there are number of existing safety/security systems developed to protect linear systems like oil/gas pipelines for transportation of oil and gas products from the first point of development up to collection stations. It becomes very important to cover existing weak of the oil and gas pipeline systems safety/security purposes by use of space technology advances. Within the paper is expected to take attention of study of the subject of linear pipeline monitoring with use of global positioning system for observation and detection of land changes in the areas actively functioning and discovering of natural disaster factor. The role of the remote sensing (RS) method in space technology application is to collect appropriate information required for engineering activities. It is main segment of geo-data use for the further geographical information system (GIS) development. A GIS is the environment for storing, managing a great deal of data about the space images and all the related attributes to allow their manipulation, analysis and finally presentation according to expected choice. RS and GIS an excellent instrument for performing engineering facilities, computation data both space and field, prediction, retrieving through data processing with use of required software application, especially overlaying of different GIS layers extracted from multi remotely sensed data. GIS contents interdisciplinary segments such as agricultural engineering, civil engineering, computer science, sociology, etc. An advantage of this tool is to bring different disciplines together and become partners in the process of implementing the GIS. This paper considers to demonstrate linear pipeline systems monitoring and observation based on the methodology of GIS development using RS method for initial data collection. It is developed GIS for monitoring of oil and gas pipeline system performing integration/merging of satellite image processing and field measurements with use of the geodetic survey. As the pattern is undertaken geospatial data in the form of global positioning system and processed satellite data outcomes. Geospatial data with the processed field measurements has been integrated in the stage of "Data Integration". The final stage of process development is the maps and theirs archiving. Moreover, it has been used lined stages of management processes of monitoring/observation system with integration of spatial data and field measurements. It has performed an excellent outcome for management of overall lines of the engineering activities for oil and gas pipeline systems. Key words: Spatial data, global positioning system, GIS, monitoring, management of engineering processes, data processing.