

## Mapping of Geological Structures Using Aerial Photography

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**Abstract :** Rapid growth in data acquisition technologies through drones, have led to advances and interests in collecting high-resolution images of geological fields. Being advantageous in capturing high volume of data in short flights, a number of challenges have to overcome for efficient analysis of this data, especially while data acquisition, image interpretation and processing. We introduce a method that allows effective mapping of geological fields using photogrammetric data of surfaces, drainage area, water bodies etc, which will be captured by airborne vehicles like UAVs, we are not taking satellite images because of problems in adequate resolution, time when it is captured may be 1 yr back, availability problem, difficult to capture exact image, then night vision etc. This method includes advanced automated image interpretation technology and human data interaction to model structures and. First Geological structures will be detected from the primary photographic dataset and the equivalent three dimensional structures would then be identified by digital elevation model. We can calculate dip and its direction by using the above information. The structural map will be generated by adopting a specified methodology starting from choosing the appropriate camera, camera's mounting system, UAVs design ( based on the area and application), Challenge in air borne systems like Errors in image orientation, payload problem, mosaicing and geo referencing and registering of different images to applying DEM. The paper shows the potential of using our method for accurate and efficient modeling of geological structures, capture particularly from remote, of inaccessible and hazardous sites.

**Keywords :** digital elevation model, mapping, photogrammetric data analysis, geological structures

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