**DAILY ASSESSMENT FORMAT**

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| **Date:** | **29-06-2020** | **Name:** | **Karthik J** |
| **Course:** | IIRS Outreach Program on Satellite Photogrammetry | **USN:** | **4AL16EC030** |
| **Topic:** | Introducing Photogrammetric Concepts | **Semester & Section:** | **8TH A** |
| **GitHub Repository:** | Karthik-J |  |  |

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| **FORENOON SESSION DETAILS** |
| **Image Section**             |  | | --- | | What is Photogrammetry? | | **Photogrammetry is the science of making measurements from photographs.**  The input to photogrammetry is photographs, and the output is typically a map, a drawing, a measurement, or a 3D model of some real-world object or scene. Many of the maps we use today are created with photogrammetry and photographs taken from aircraft.  **Photogrammetry is the science of making measurements from photographs.**  The input to photogrammetry is photographs, and the output is typically a map, a drawing, a measurement, or a 3D model of some real-world object or scene. Many of the maps we use today are created with photogrammetry and photographs taken from aircraft.  Types of Photogrammetry  Photogrammetry can be classified several ways but one standard method is to split the field based on camera location during photography. On this basis we have Aerial Photogrammetry, and Terrestrial (or Close-Range) Photogrammetry.  In **Aerial Photogrammetry**, the camera is mounted in an aircraft and is usually pointed vertically towards the ground. Multiple overlapping photos of the ground are taken as the aircraft flies along a flight path. The aircraft traditionally have been fixed wing manned craft but many projects now are done with [drones and UAVs](http://www.photogrammetry.com/UAV-drone-photogrammetry.htm). Traditionally these photos were processed in a stereo-plotter (an instrument that lets an operator see two photos at once in a stereo view) but now are often processed by automated desktop systems.  In **Terrestrial and Close-range Photogrammetry**, the camera is located on the ground, and hand held, tripod or pole mounted. Usually this type of photogrammetry is non-topographic - that is, the output is not topographic products like terrain models or topographic maps, but instead drawings, 3D models, measurements, or point clouds. Everyday cameras are used to model and measure buildings, engineering structures, forensic and accident scenes, mines, earth-works, stock-piles, archaeological artifacts, film sets, etc. In the computer vision community, this type of photogrammetry is sometimes called Image-Based Modeling. Mapping Photomapping is the process of making a map with "cartographic enhancements" that have been drawn from a [photomosaic](https://en.wikipedia.org/wiki/Photographic_mosaic) that is "a composite photographic image of the ground" or more precisely as a controlled photomosaic where "individual photographs are rectified for tilt and brought to a common scale (at least at certain control points)."  Rectification of imagery is generally achieved by "fitting the projected images of each photograph to a set of four control points whose positions have been derived from an existing map or from ground measurements. When these rectified, scaled photographs are positioned on a grid of control points, a good correspondence can be achieved between them through skillful trimming and fitting and the use of the areas around the principal point where the relief displacements (which cannot be removed) are at a minimum."  "It is quite reasonable to conclude that some form of photomap will become the standard general map of the future." go on to suggest that, "photomapping would appear to be the only way to take reasonable advantage" of future data sources like high altitude aircraft and satellite imagery. The highest resolution aerial photomaps on GoogleEarth are approximately 2.5 cm (0.98 in) spatial resolution images. The highest resolution photomap of ortho images was made in Hungary in 2012 with a 0.5 cm (0.20 in) spatial resolution. 3D modeling A somewhat similar application is the scanning of objects to automatically make 3D models of them. The produced model often still contains gaps, so additional cleanup with software like [MeshLab](https://en.wikipedia.org/wiki/MeshLab), netfabb or MeshMixer is often still necessary.  [Google Earth](https://en.wikipedia.org/wiki/Google_Earth) uses photogrammetry to create 3D imagery. |  |  |  | | --- | --- | |  |  | |