

Digital Photogrammetry Intro

Terrestrial Image, distance 5-50m



Oblique Image, distance 100m+



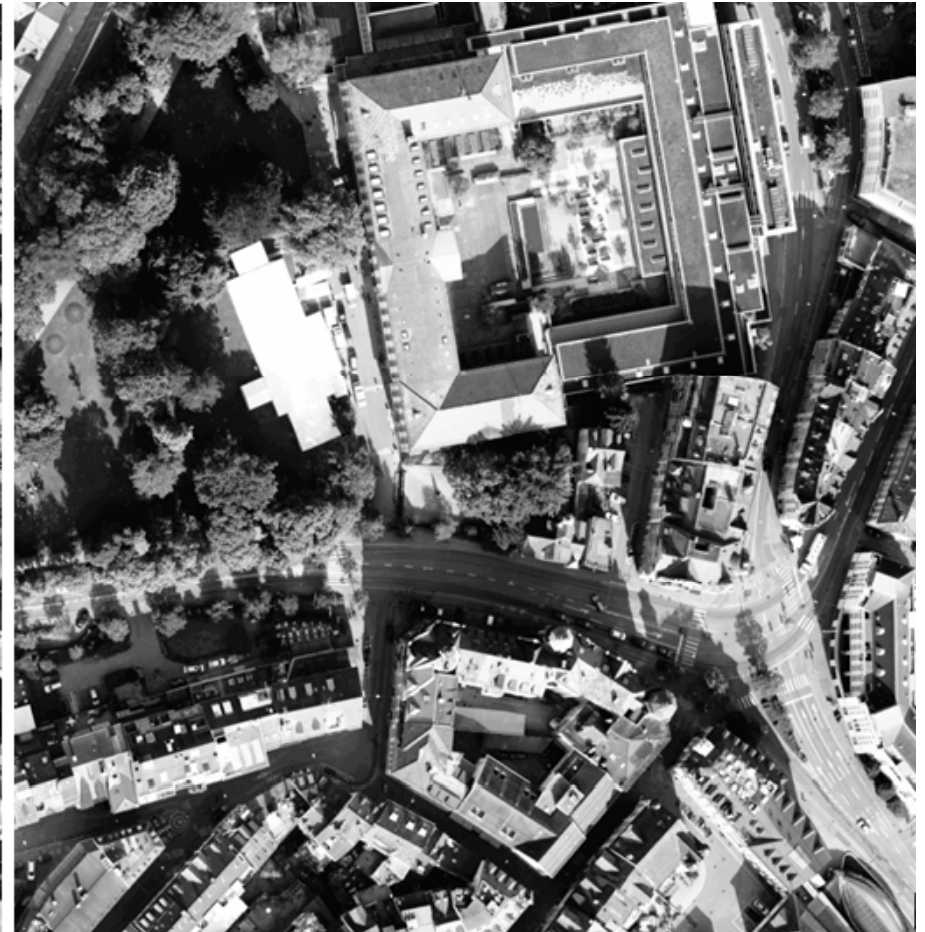
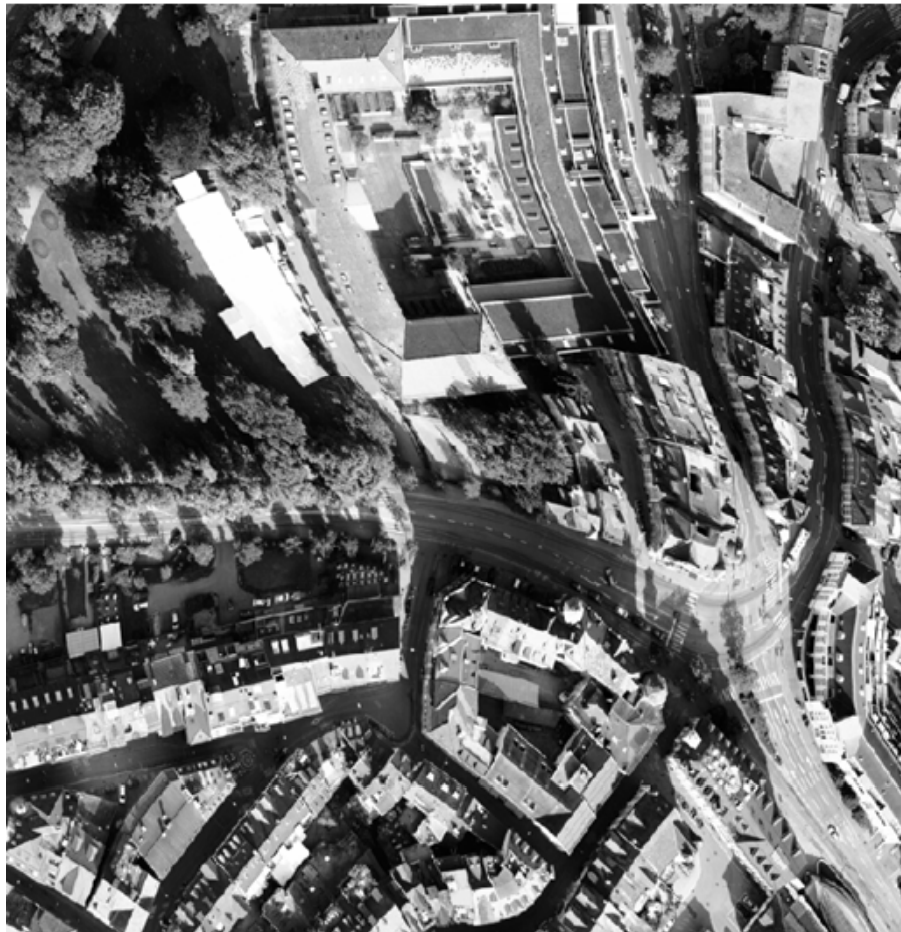
Frame Aerial Imagery, GSD = 8 cm



Aerial Photograph, altitude 6000m



Airborne pushbroom imagery, inertial measurements for attitude are essential



Quickbird pushbroom, LEO, alt. ~ 400km



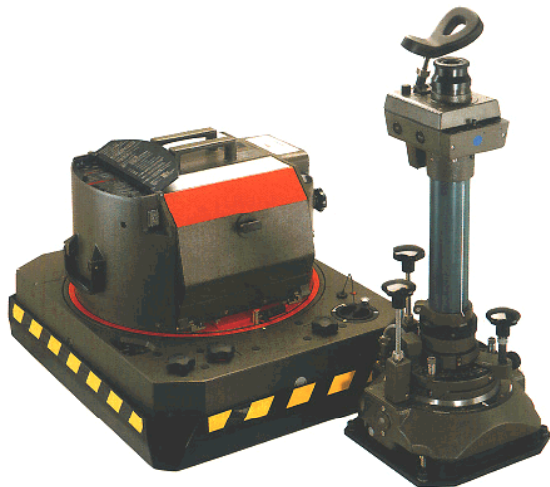
Consumer Digital Cameras



Consumer Stereo HD Video Camera



Aerial Cameras



Lenses for Aerial Camera

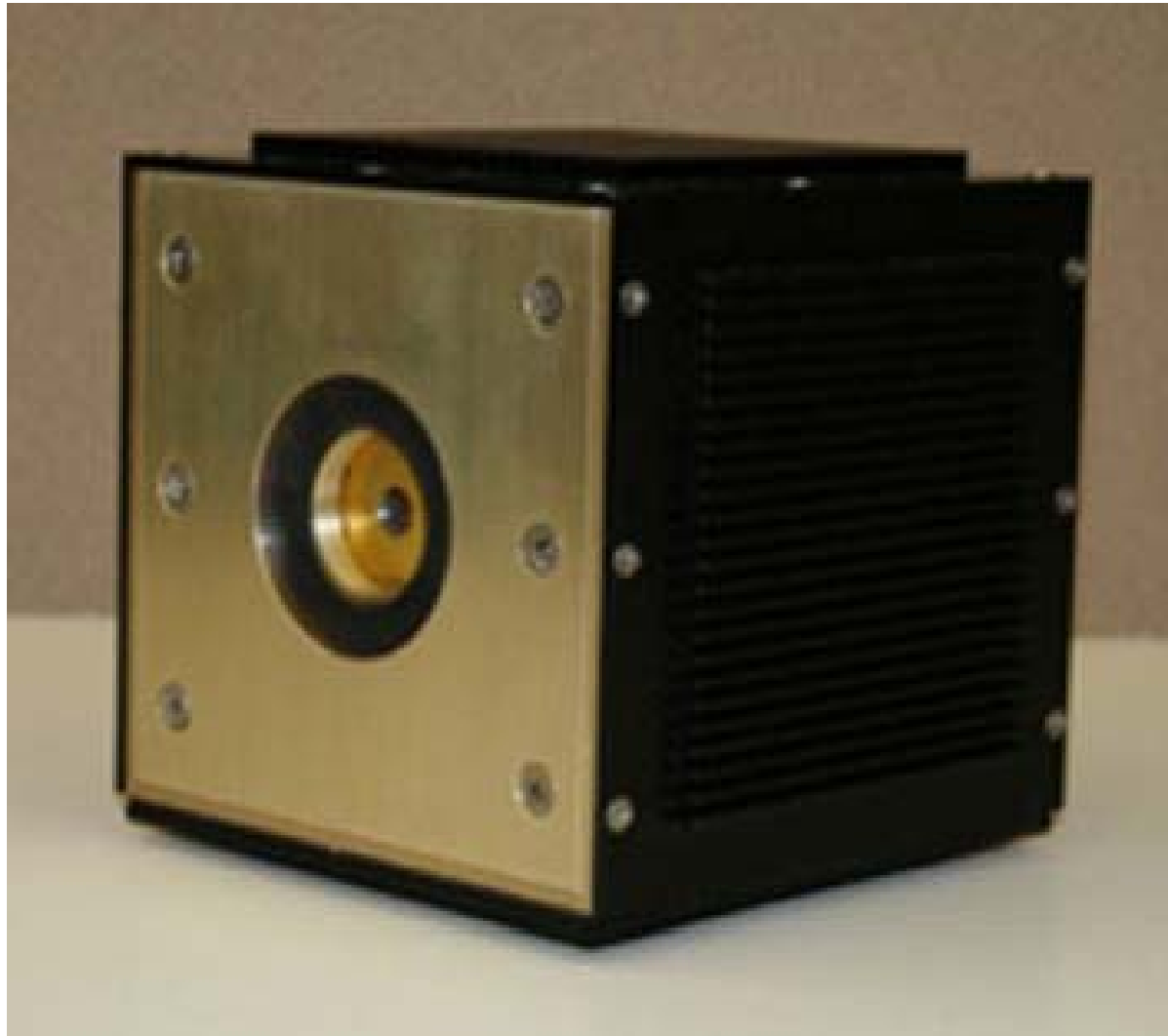
Wide angle lens cone



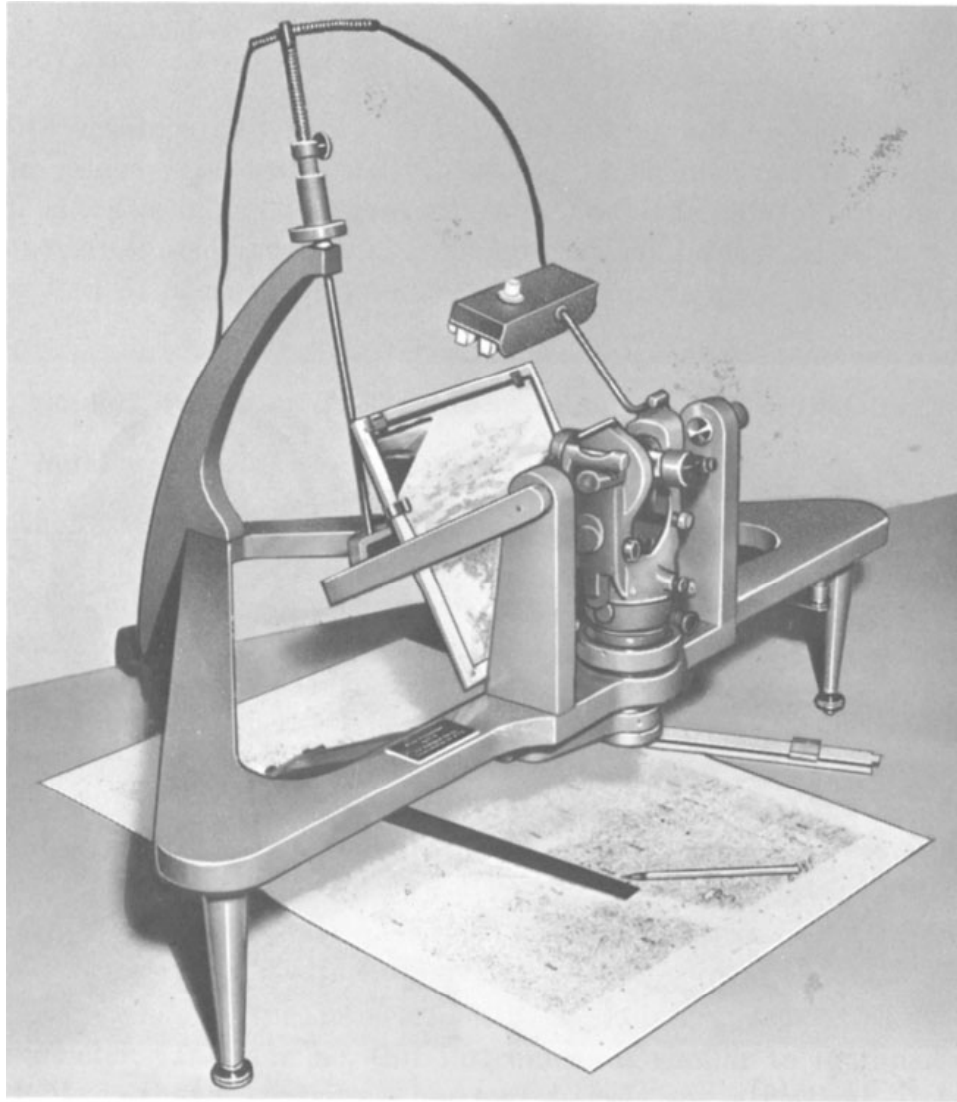
Normal angle lens cone



Boeing 3D Camera (active)



Old Photo Measurement Device, H & V angles

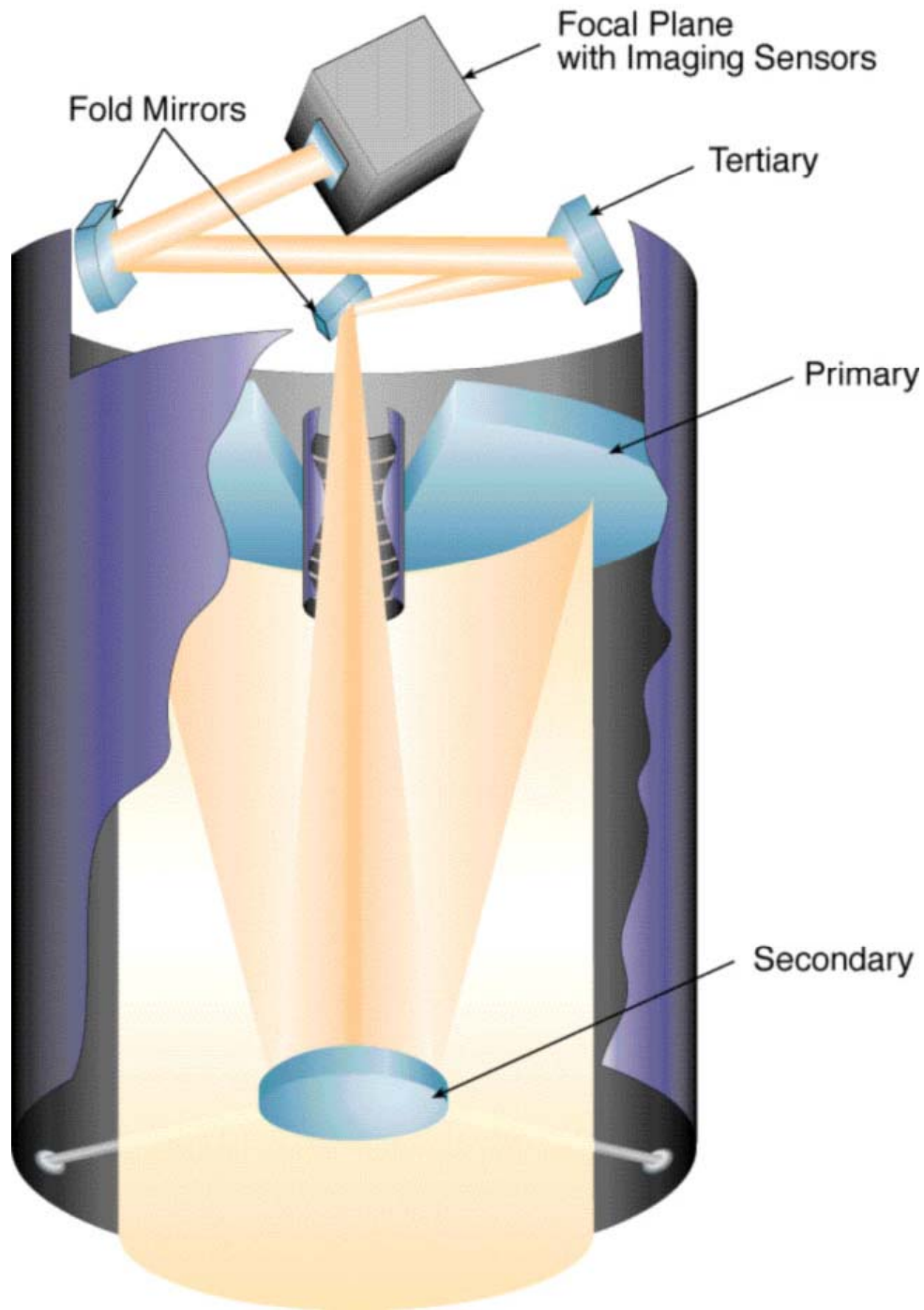


$10\mu\text{m} @ 152\text{mm} = 14$
arc sec

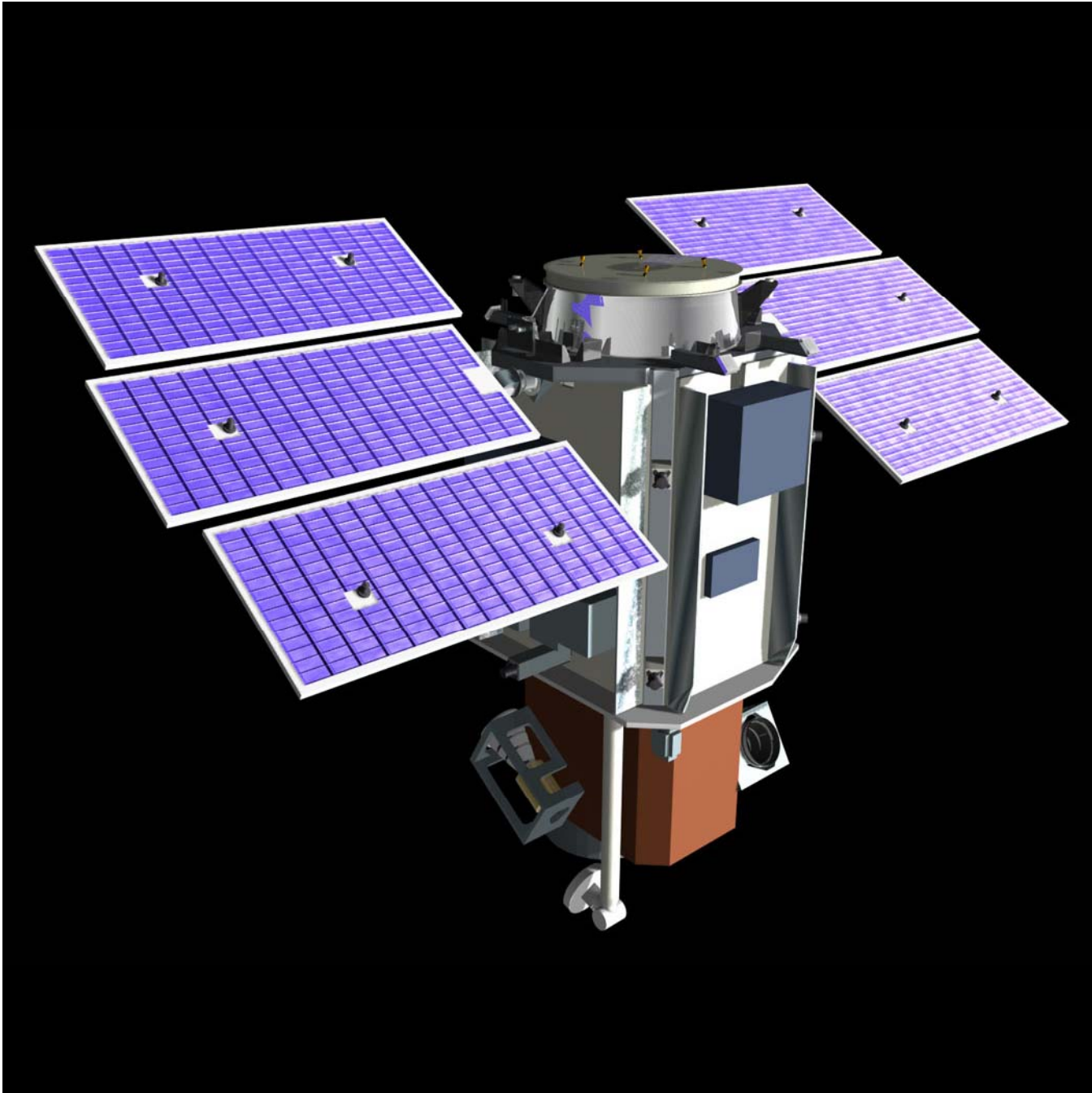
$23\text{cm} \times 23\text{cm} @ 10\mu\text{m} =$
530 Mpix

That is a lot of
geometric information

FIG. 1-15. Photoalidade. (Courtesy of U. S. Geological Survey.)



Schematic of IKONOS camera

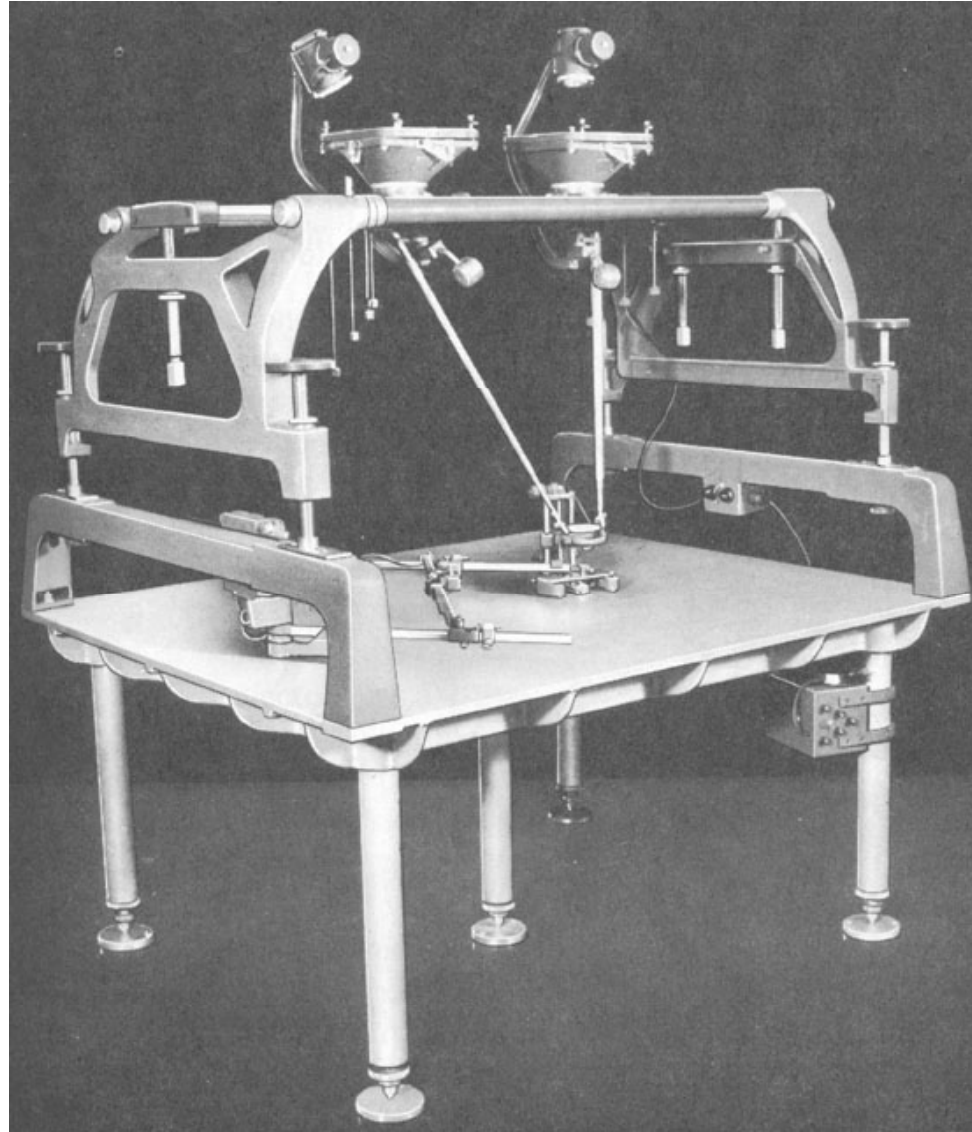


Quickbird

Orbview 3

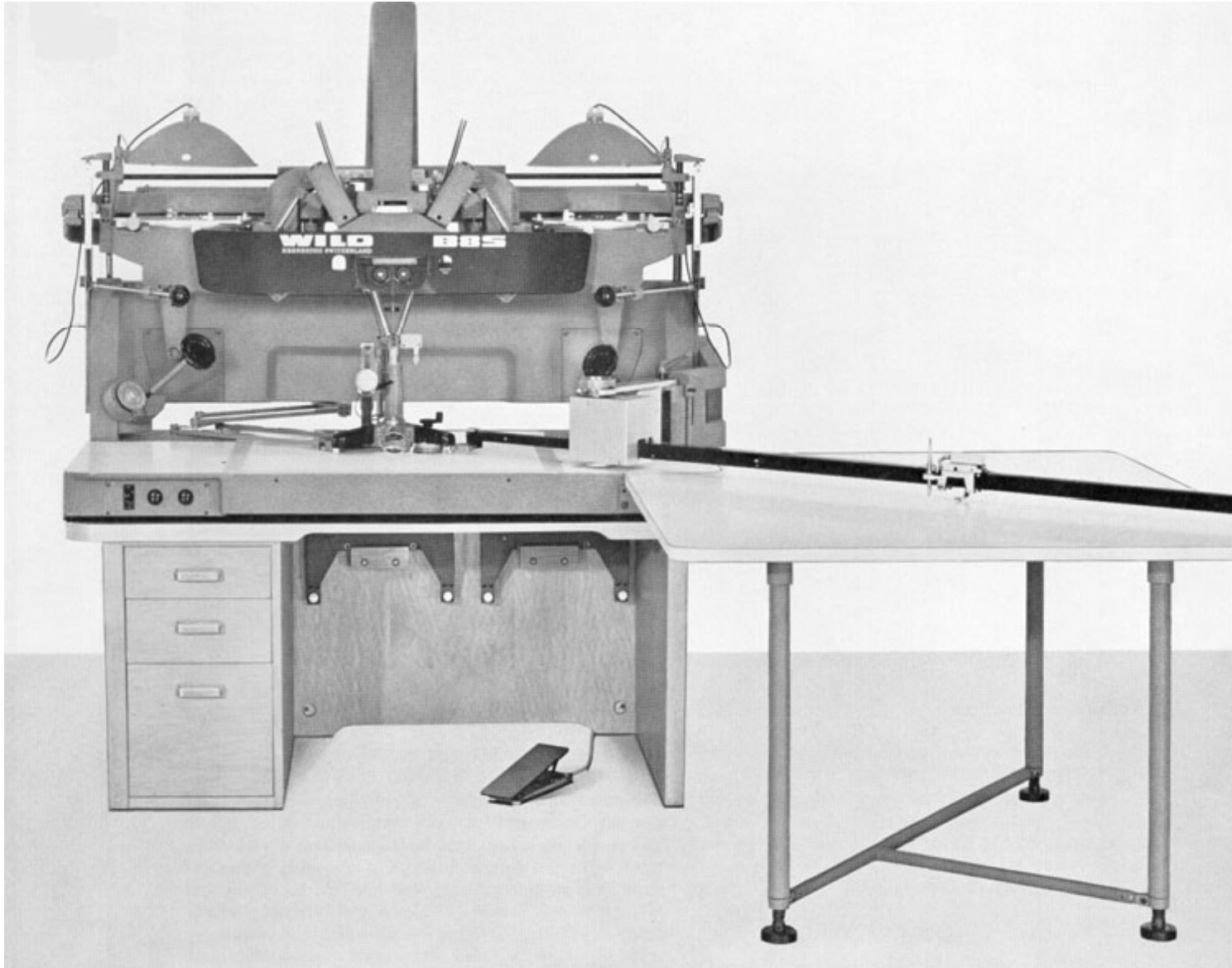


Stereo Collection Environments



Kelsh

B8



Digital Photogrammetric Workstation



Signalized Ground Control Point



Signalized GCP



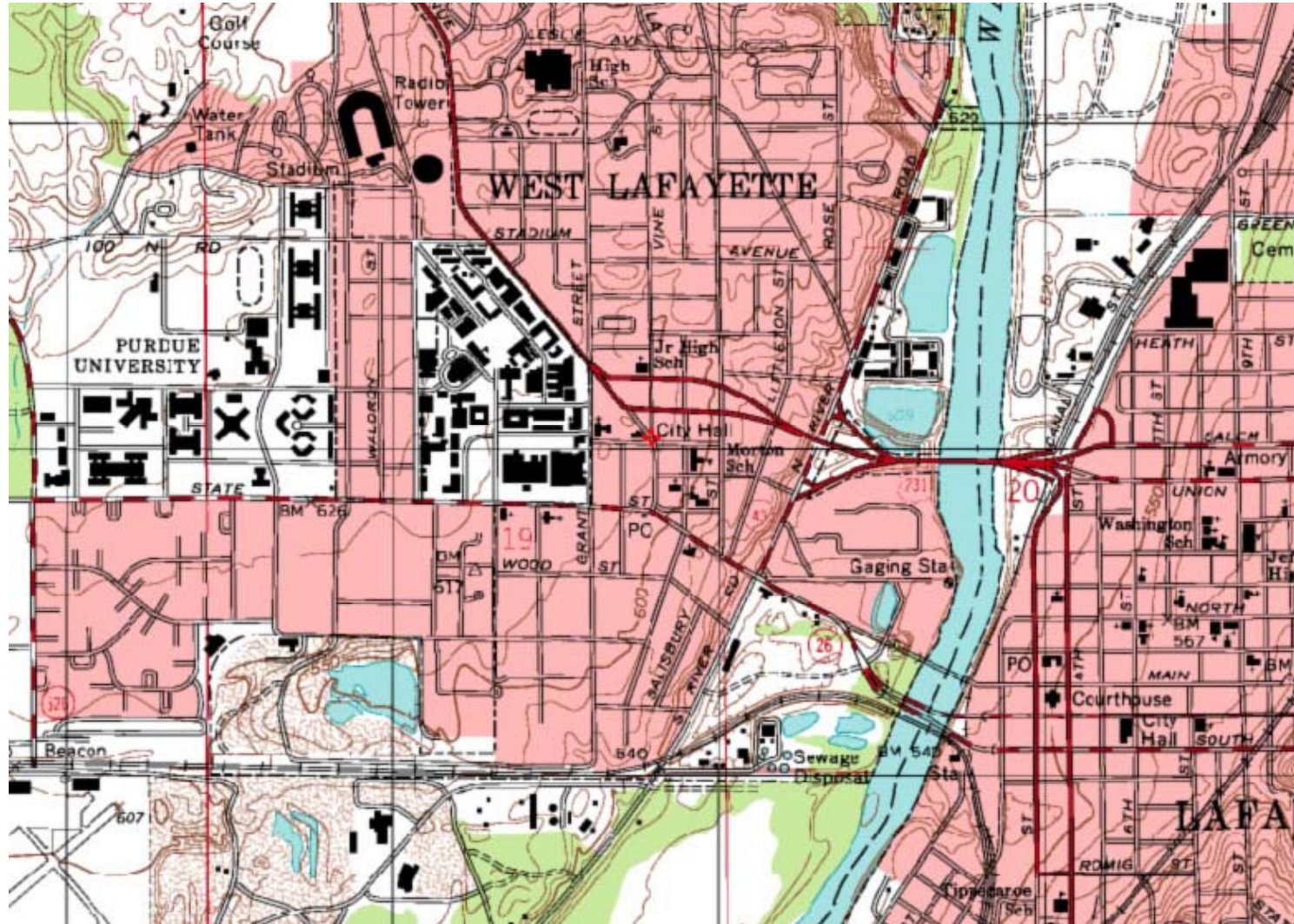
Signalized GCP, Area Context



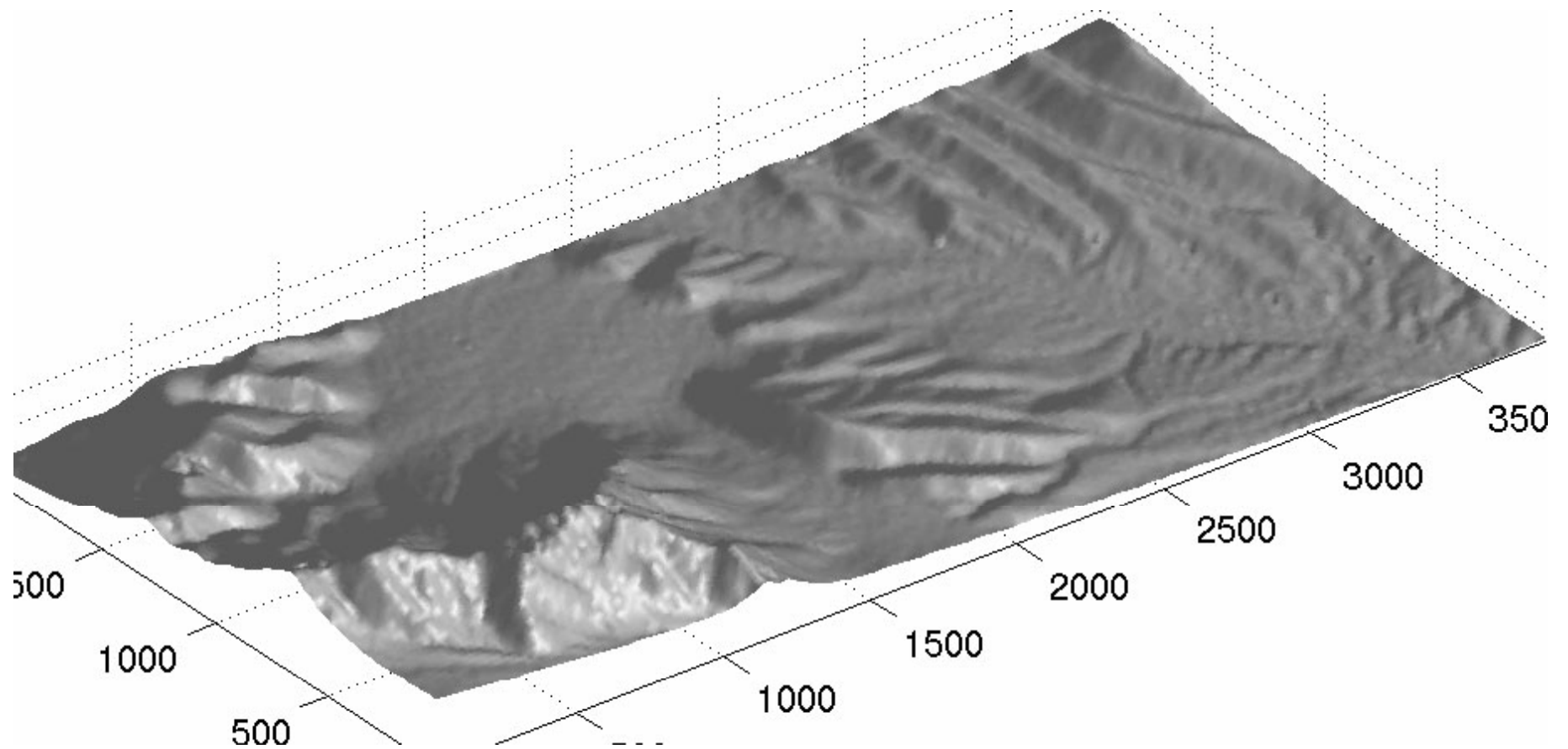
Products: Coordinate List

Name	East	North	Height
STNE	914033.105	575906.022	205.029
MACK	914240.575	575735.100	193.806
BBLL	913565.598	575312.949	188.413
LILY	913918.320	574521.670	189.121
UNION	914669.074	574627.642	187.221
FOOD	914259.905	574429.529	188.090
T019	914270.793	575432.323	191.420
PH11	914684.629	575022.082	186.935
CHEM	914390.023	574830.733	188.652
PH12	913928.634	575198.475	189.874
HISC	914661.357	575767.410	192.104

Products: Topographic Map

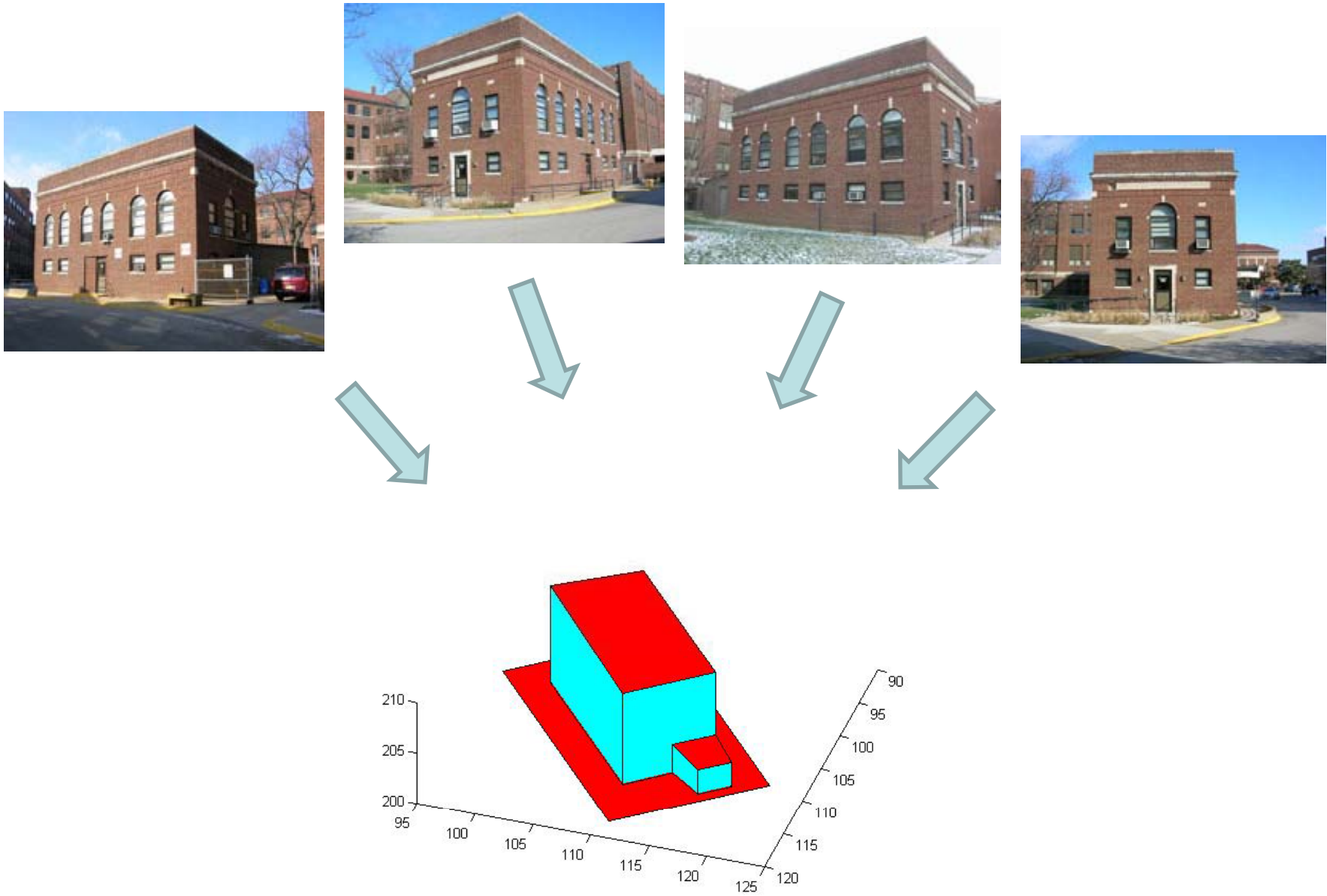


Products: DEM, DSM



**Product: 3D Site Models for
Visualization, Simulation, or
Virtual Reality**

Block Adjustment and Stereo Extraction to CAD Model



Imagery Draped onto CAD Model

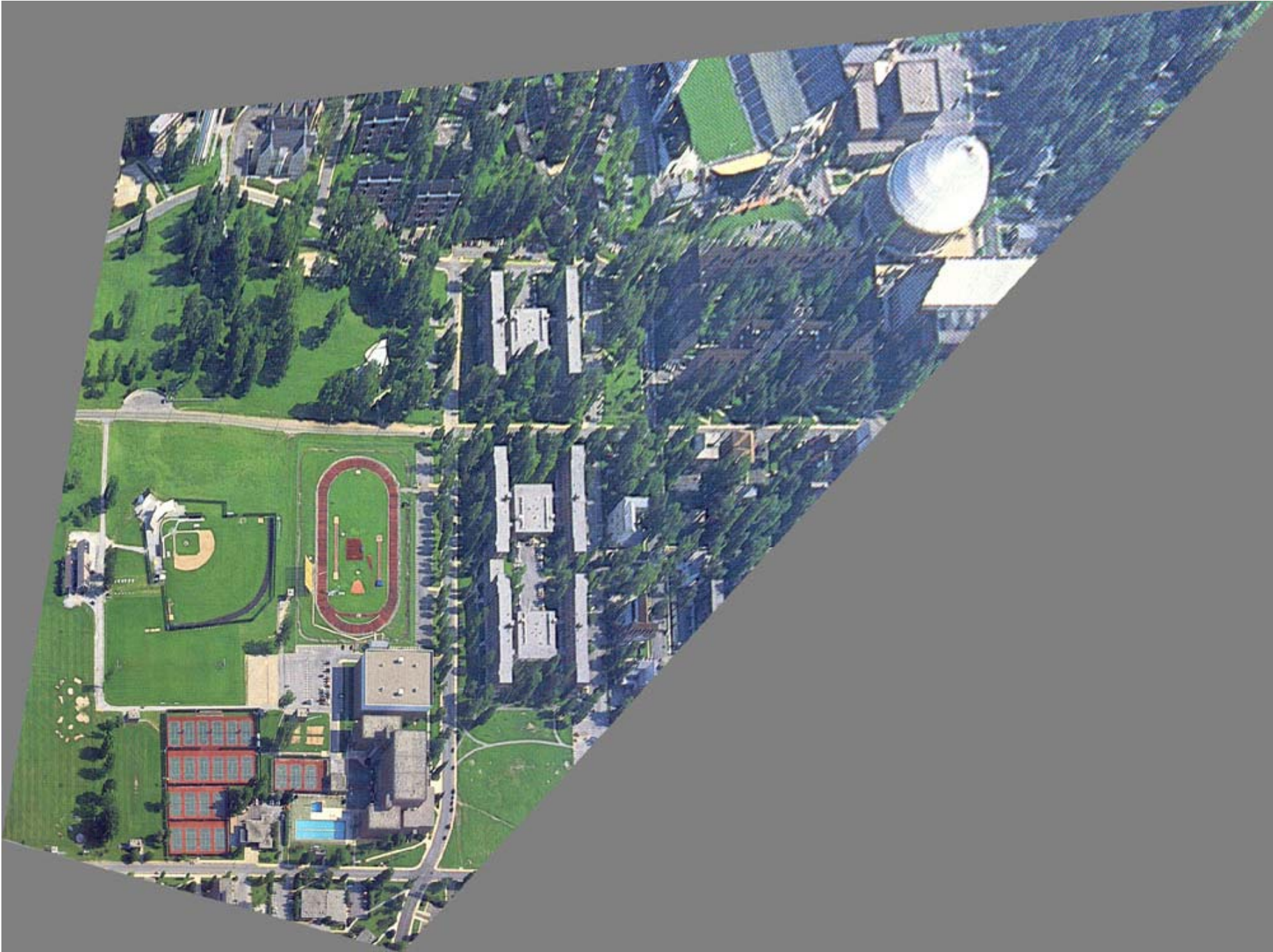


Vertical & oblique imagery draped onto bldg. models



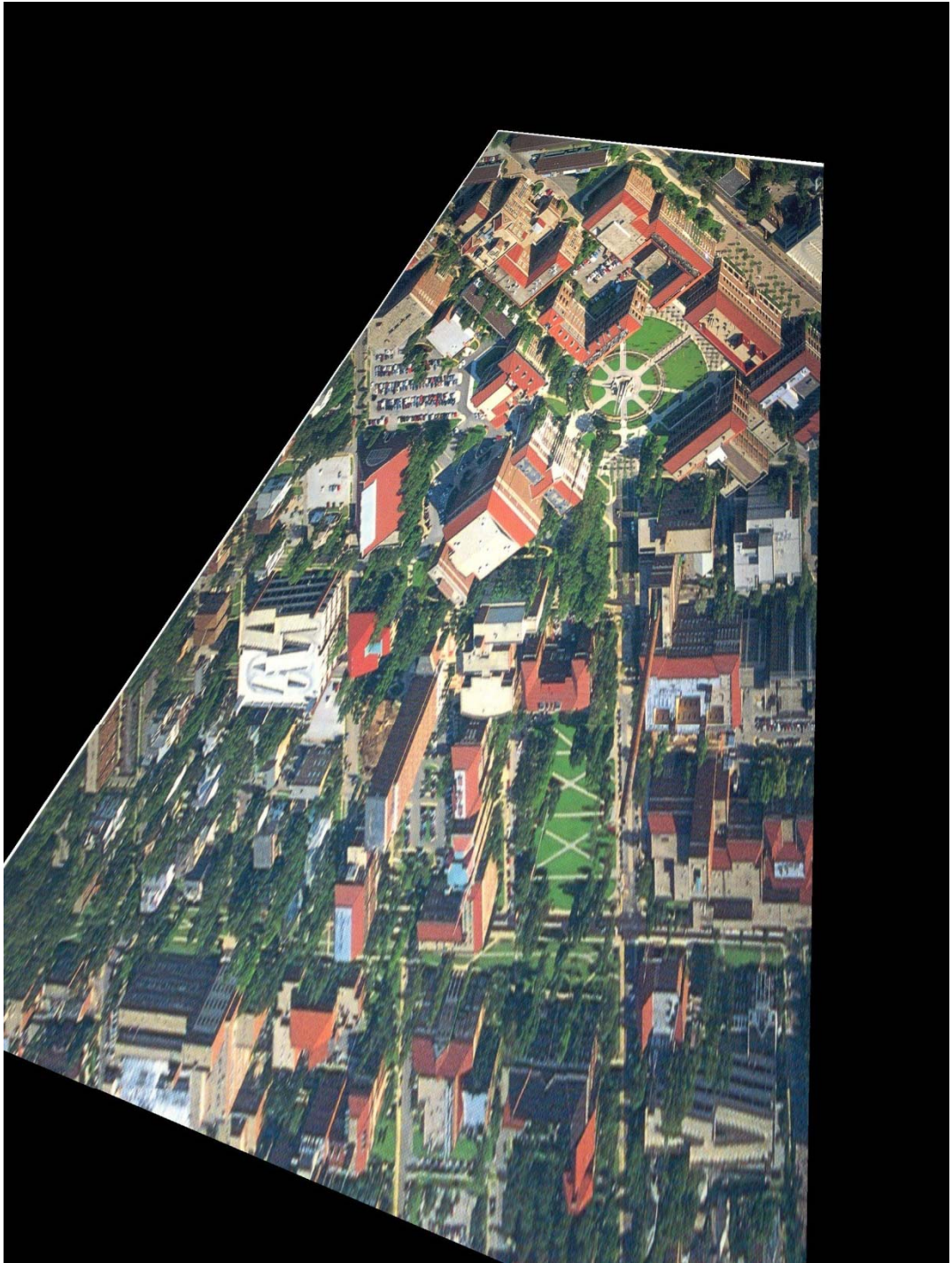
Products: Oblique & Rectified





Products: Oblique & Rectified







Panoramic



Rectified