

LABORATORY OF GEOARCHAEOLOGY

Methods of aerial photography

Flying instruments:

1. Microlight - motorized deltaplan
2. Aerochute - motorized paraplan

Photographic instruments:

1. Film negatives
2. Digital photography

Shooting technique:

- 1-photo sessions during diagonal light (dawn-sunset)
- 2- orthogonal and diagonal views
- 3- photo sessions at various altitudes (from very high 1 500 m to very low 150 m)



APPLICATIONS OF AERIAL PHOTOGRAPHY

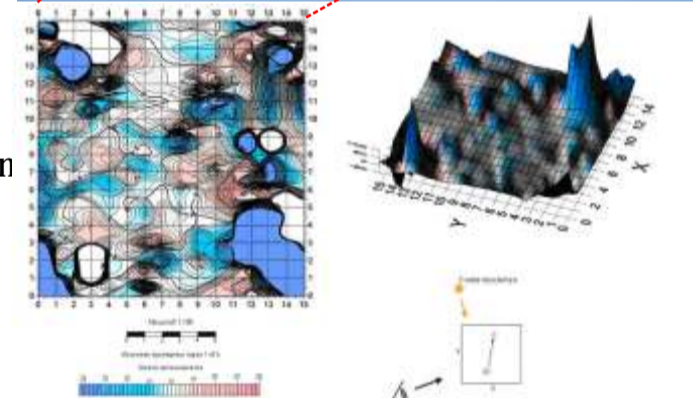
1. Archaeological prospection and documentation
2. Geological, mineralogical and geomorphological prospection and documentation
3. Geophysical surveys



Discovery of underground structures, ancient streams and canals using diagonal light, crop marks and soil humidity



Discovery and research of ancient mines. Here Bronze Age tin mines in the Kalbin range in



Geomagnetic survey with geophysical instrument on board

PROCESSING OF PHOTO MATERIAL

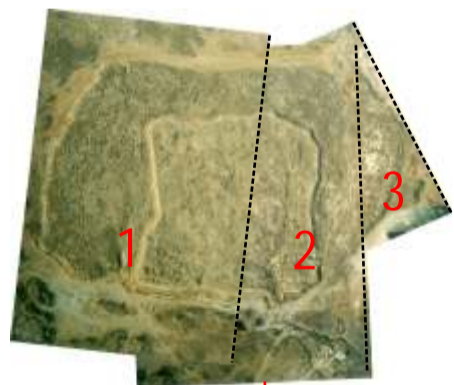


Photo composition through specialized software



Photo orthorectification through Autocad overlay ©



Image processing with 3D filters

USTYURT PLATEAU NORTHERN SCARP - DONGYZTAU

Documentation of ancient settlements, cemeteries and wild animal traps.



Google earth with 5 m resolution

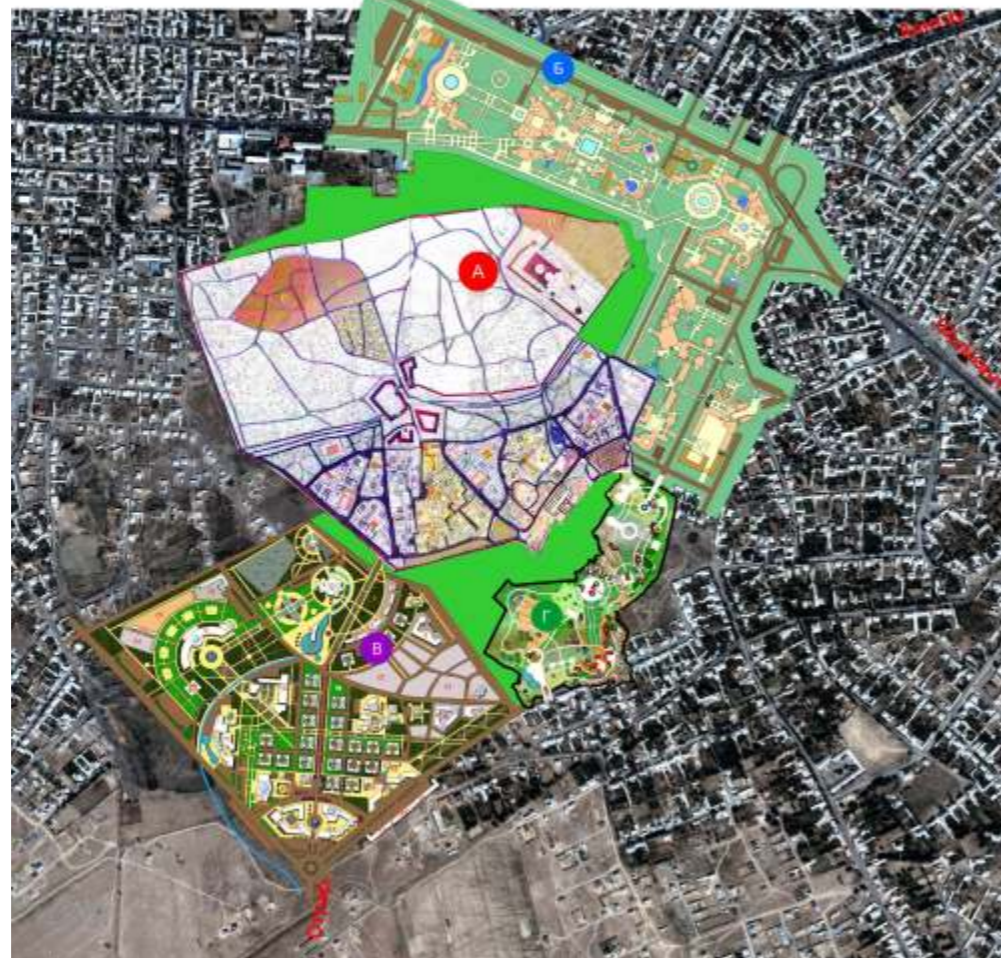
Aerial photo with orthogonal and diagonal views

MEDIEVAL TOWN OF YASY - TURKESTAN

Documentation of archaeological ruins for conservation management plan



Генеральный план
Исторической части города Туркестан



Up: Detailed view of fresh excavations not visible on satellite images.
Down: Satellite image Google earth with 5 m resolution as background of the architectural plan of conservation .



Aerial photo composition (15 views) with orthogonal view as overlayer of a satellite image Google earth with 5 m resolution.

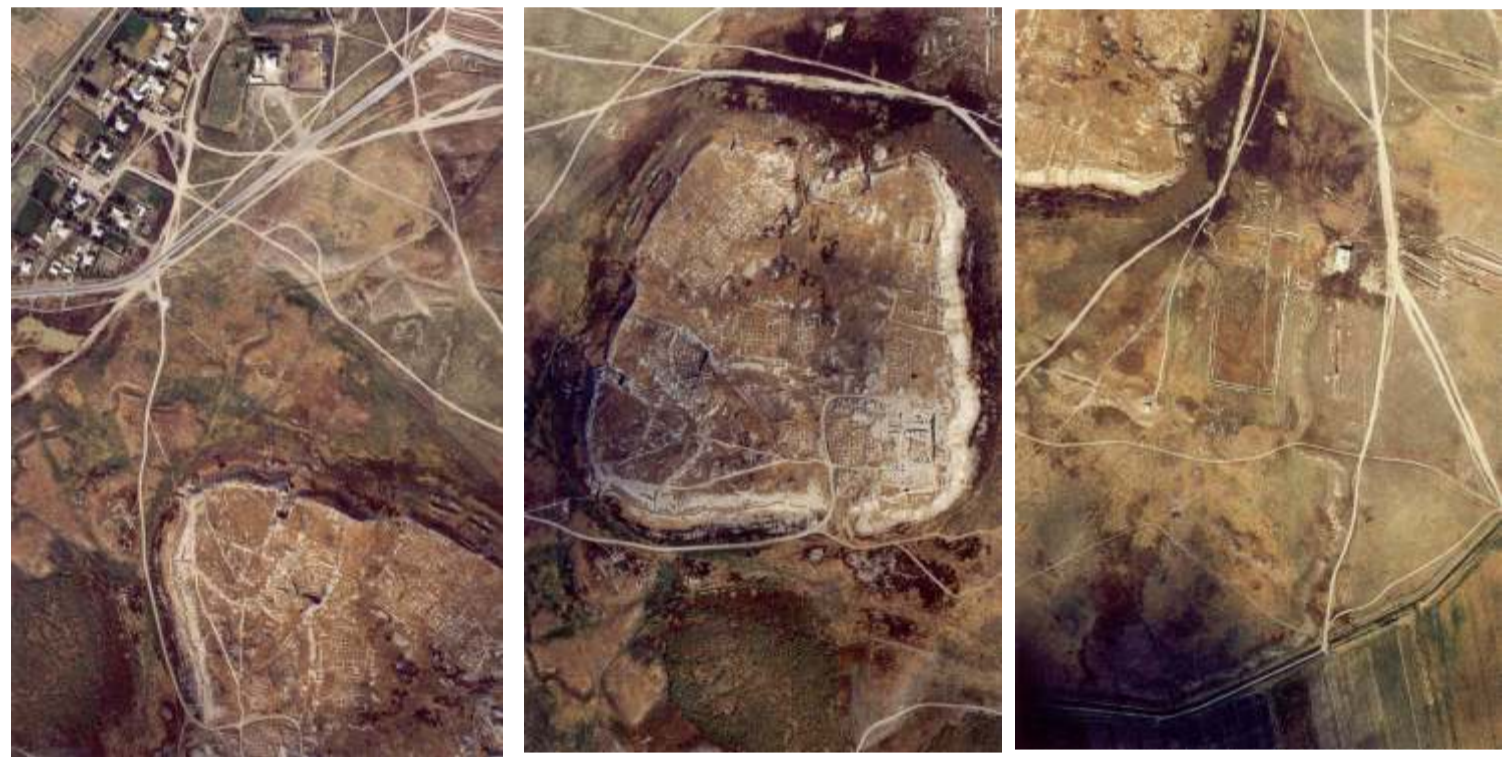
MEDIEVAL TOWN OF OTRAR

Documentation of the archaeological site for the conservation plan (order of Unesco)

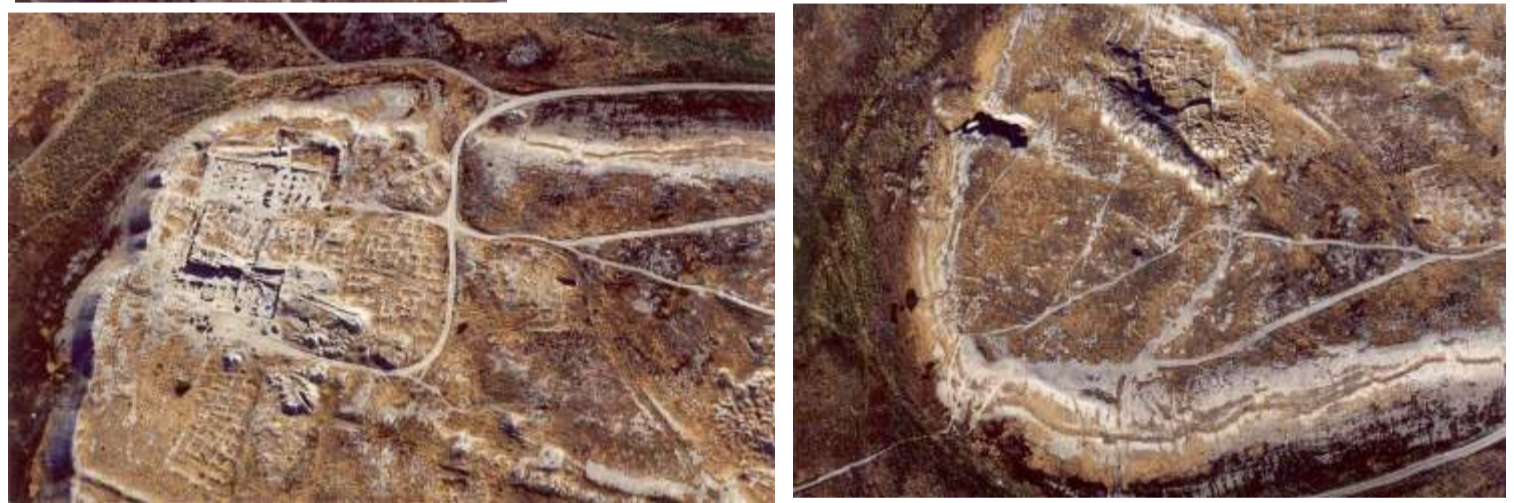
Aerial photo with orthogonal
and diagonal views
at very high altitude: 1.500 m



At middle altitude: 1.000 m



At low altitude: 400 m



At low altitude: 300 m



STUDY OF THE ANCIENT LANDSCAPES OF KAZAKHSTAN

Change of river course, alluvial terraces, water use and ancient settlements



Tamgaly



Chu-Ili mountains



Serektas



Meanders of river Talas near Akjar



Talas valley Dried distributaries of Talas river longing Okkhum fort



Meanders of river Syrdarya near Otrar



Syrdarya valley

Meanders of river Arys near Otrar



Karez (aquifer uplifting wells) line near Sauran



Turkestan oasis

Lacustrine belt Kaldikol near Turkestan