National University of Uzbekistan

USING THE TRILATERATION METHOD FOR TECTONICS OF UZBEKISTAN

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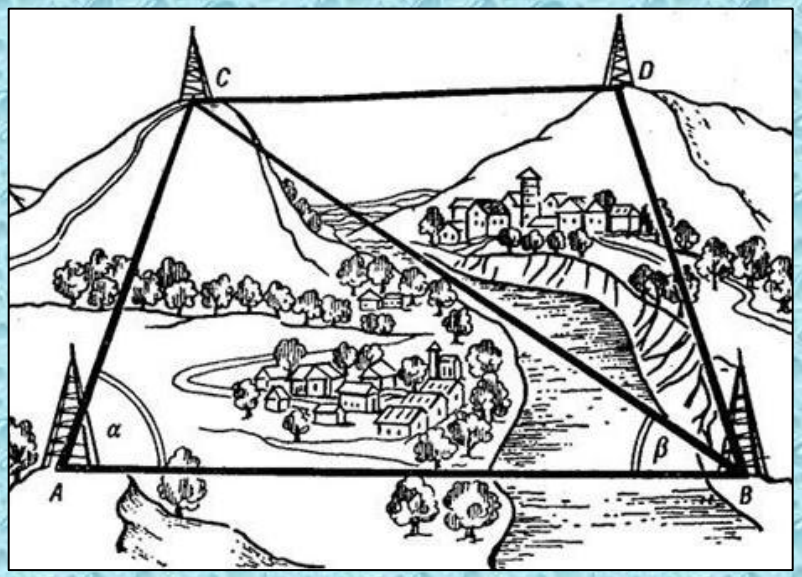
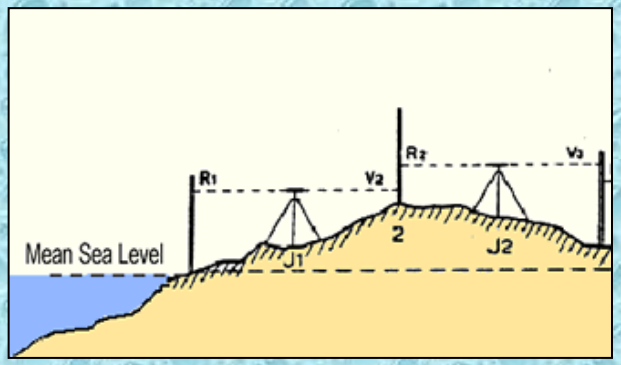
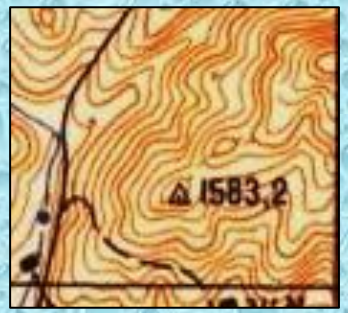
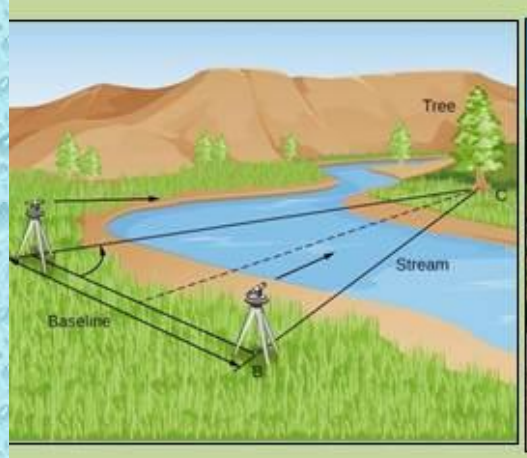
Classical measurements

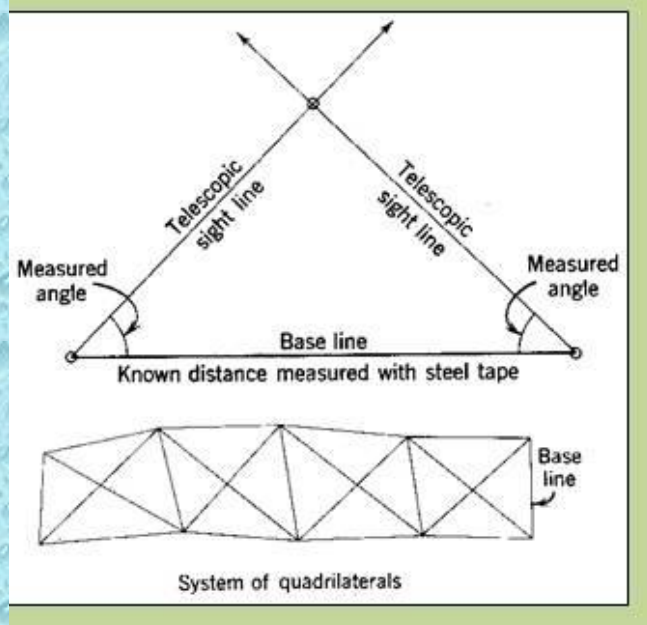


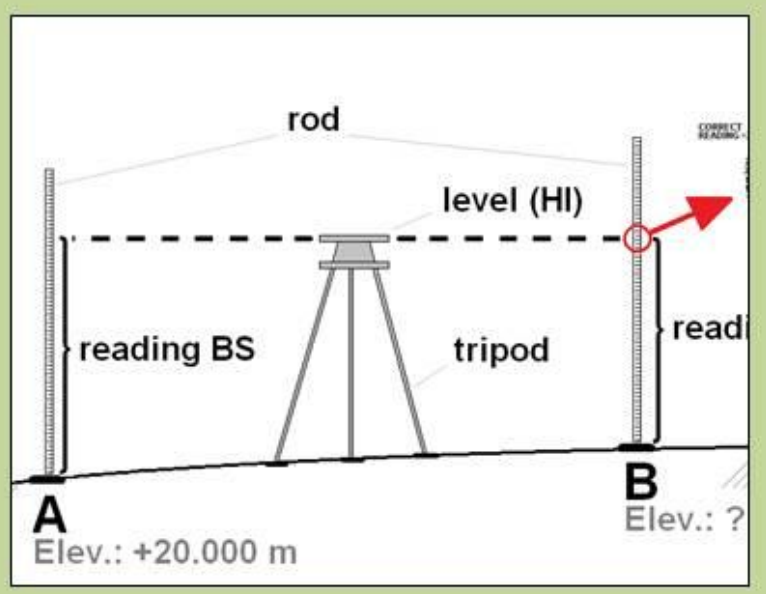




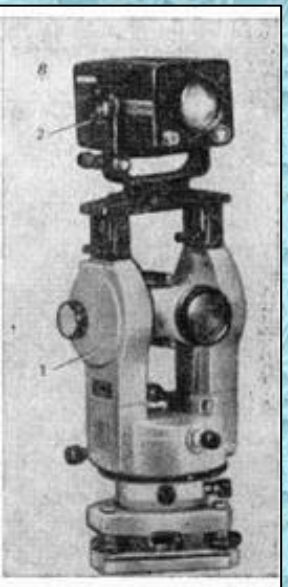
Geodetic measurements





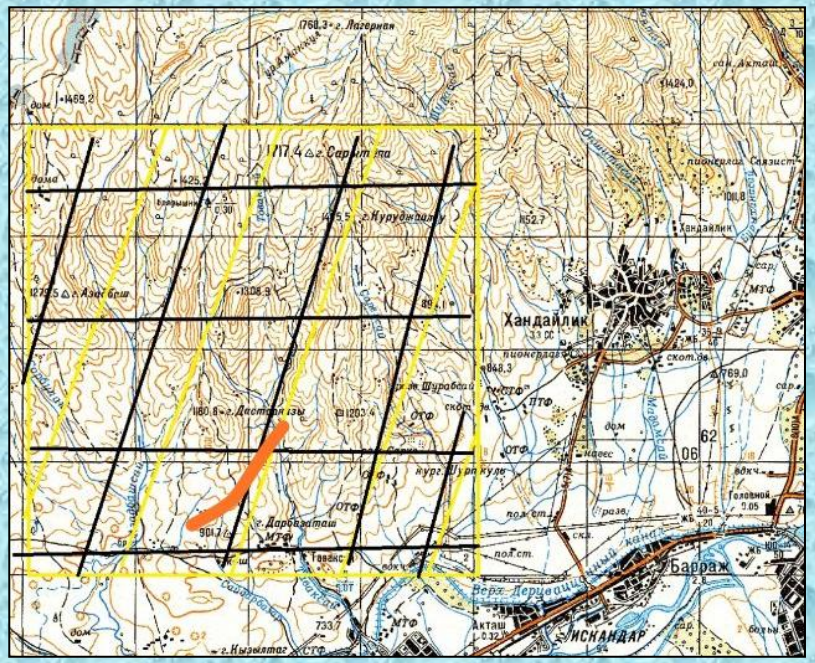


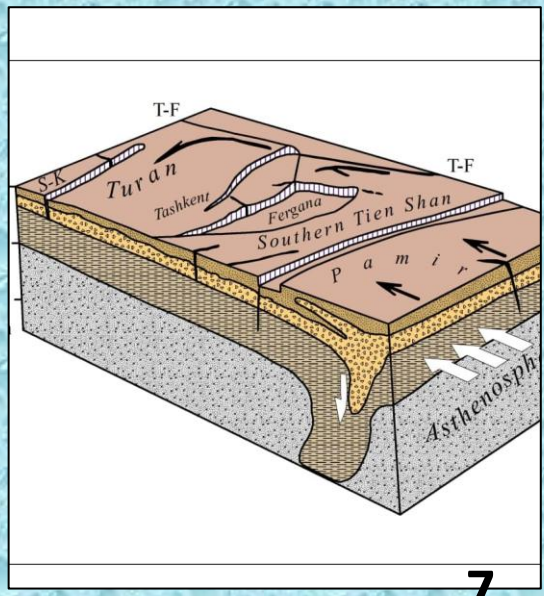
Light and radio ranging



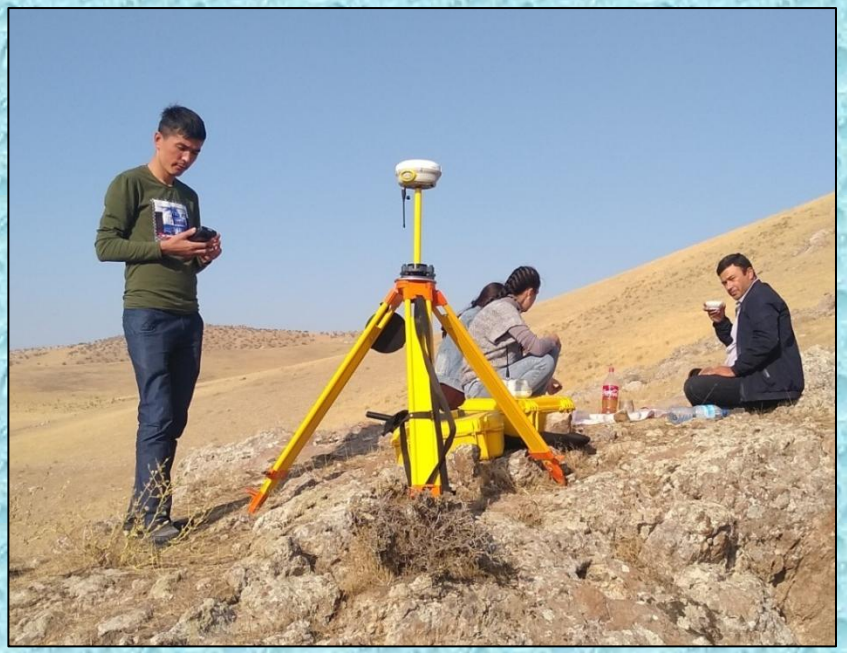
Electronic and Laser instruments

Geodynamic polygon

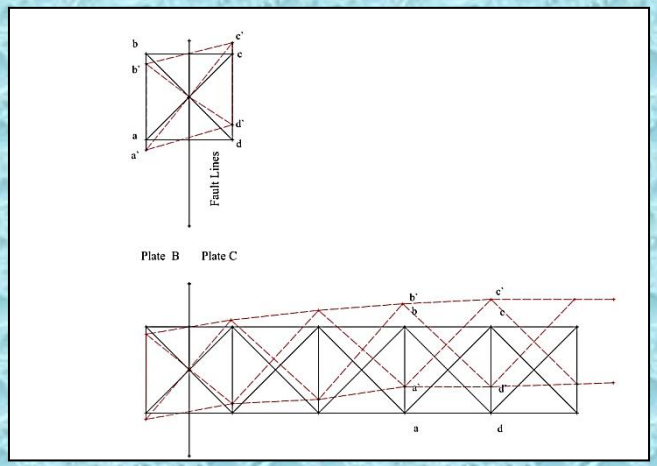


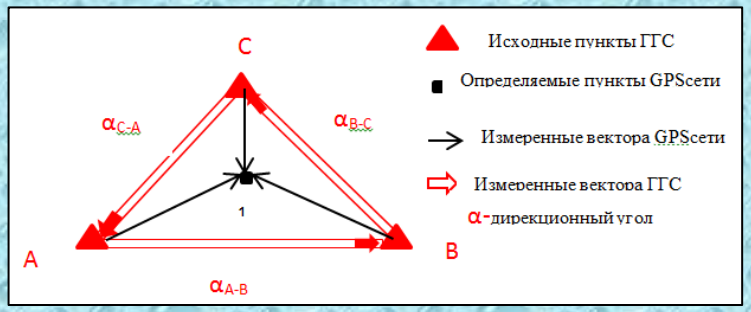


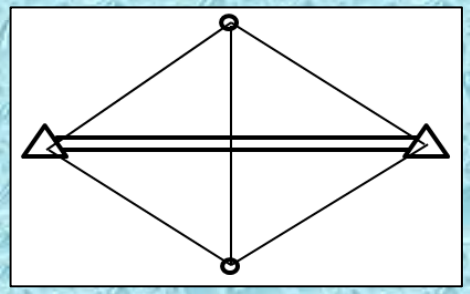
GNSS measurements

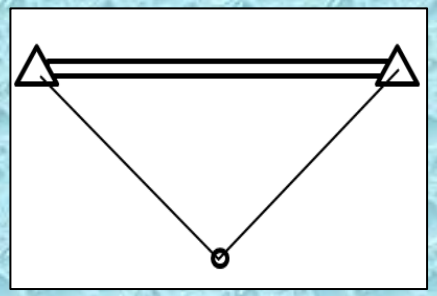


Classical geodetic network





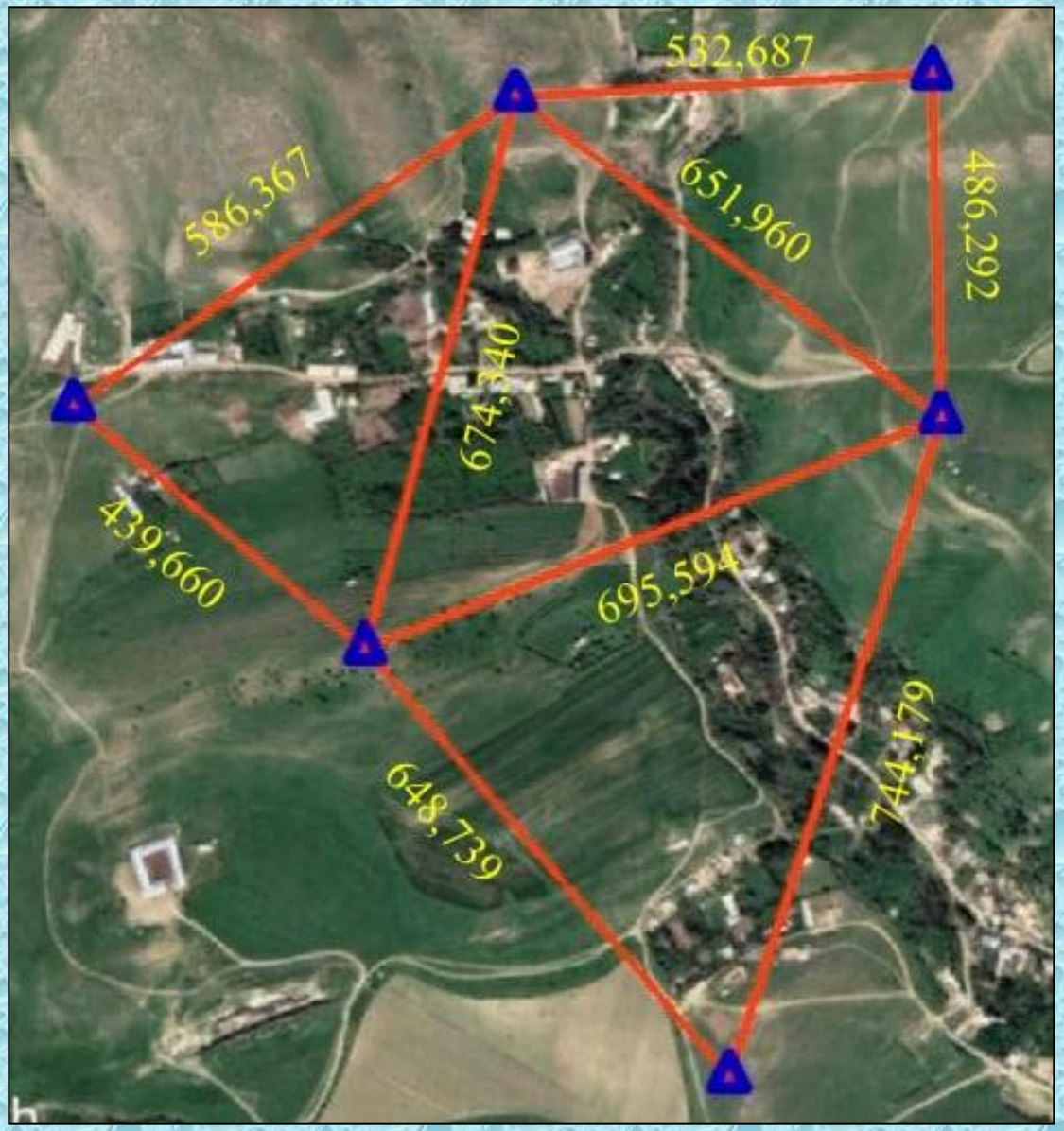




$$\sigma_F = m\sqrt{\frac{1}{P_F}}\ ,$$

$$N^{-1} = Q = \begin{pmatrix} Q_{11} & Q_{12} \cdots & Q_{1m} \\ Q_{21} & Q_{22} \cdots & Q_{2m} \\ \cdots & \cdots & \cdots \\ Q_{m1} & Q_{m2} & Q_{m1} \end{pmatrix}$$

Tavaksay geodynamic polygon



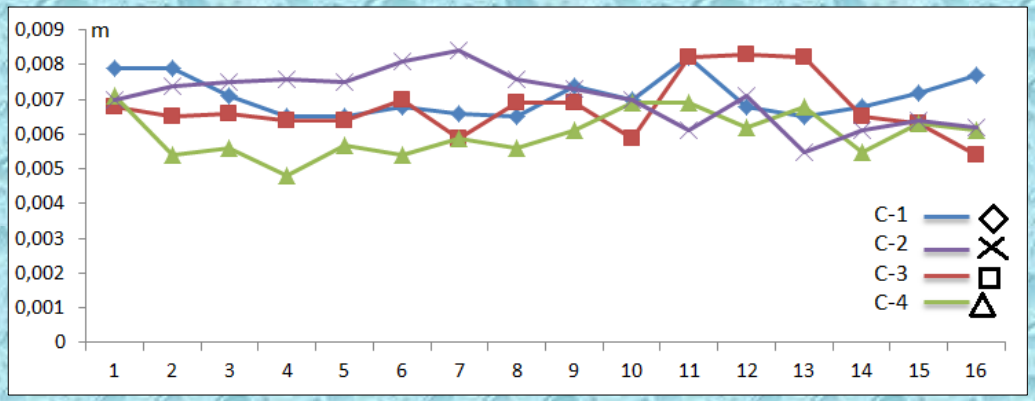
Calculations

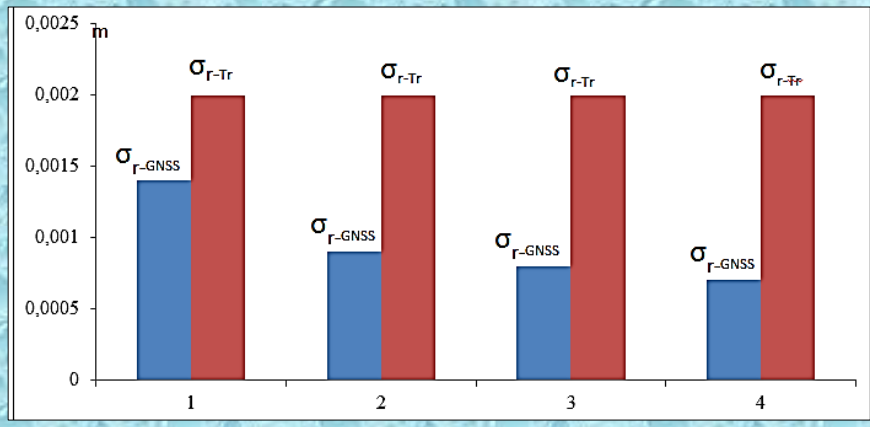
Initial coordinates of the base station

CIRC	WGS84	CK42
B	41°34'20.766"	41°34'20.047"
L	69°39'39.090"	69°39'41.770"
H	770.589m	805.911m
X	4604440.020	4604418.212
Y	12555118.680	12555180.944

Diagonal elements of the covariance matrix

№	$\sigma_{x(m)}$	$\sigma_{y(m)}$	$\sigma_{z(m)}$
1	0.002	0.003	0.003
2	0.002	0.003	0.003
3	0.002	0.004	0.004
4	0.002	0.003	0.003





Calculations

	X(m)	Y(m)	B_{wgs84}	L_{wgs84}	H_{wgs84}
C	4604418.212	555180.944	41°34' 20.766	69°39'39.090"	770.589
4	4604511.723	554213.899	41 34 24.034	69 38 57.381	774.531
2	4604900.210	555222.062	41 34 34.861	69 39 18.159	797.660
3	4604849.600	554692.462	41 34 13.776	69 39 10.550	777.006
ast	4604197.524	554521.354	41 34 36.361	69 39 41.039	824.845

CONFERENCE


SCIENCE . RESEARCH . TECHNOLOGY
24-26 May, 2021
Moscow, Russia
MIIGAiK
CONFERENCE CHAIRS:
Nadezhda Kamynina
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RAS Academician, Professor
Doctor of Engineering
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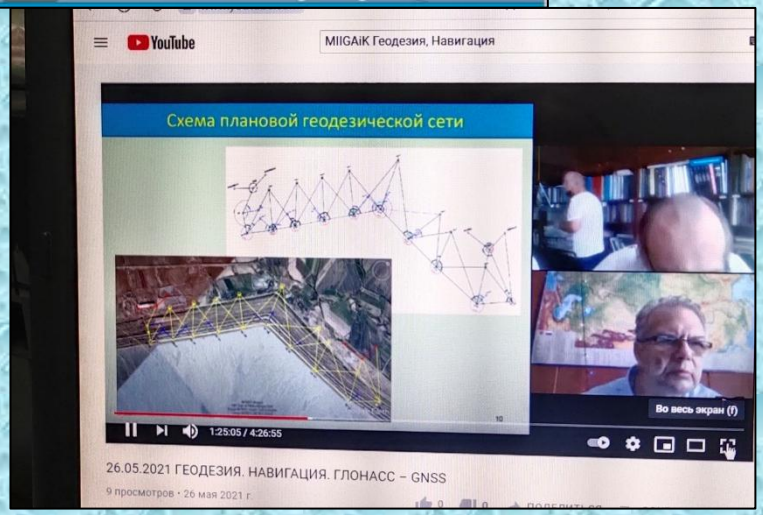
PhD in Engineering
Annual International Scientific Conference
242nd Annivarsary of
Moscow State University of Geodesy and Cartography


YouTube
MIIGAiK Геодезия, Навигация
Схема плановой геодезической сети
1:25:05 / 4:26:55
Во весь экран (f)
26.05.2021 ГЕОДЕЗИЯ. НАВИГАЦИЯ. ГЛОНАСС – GNSS

International memorandum

MEMORANDUM OF UNDERSTANDING

Between

National University of Uzbekistan

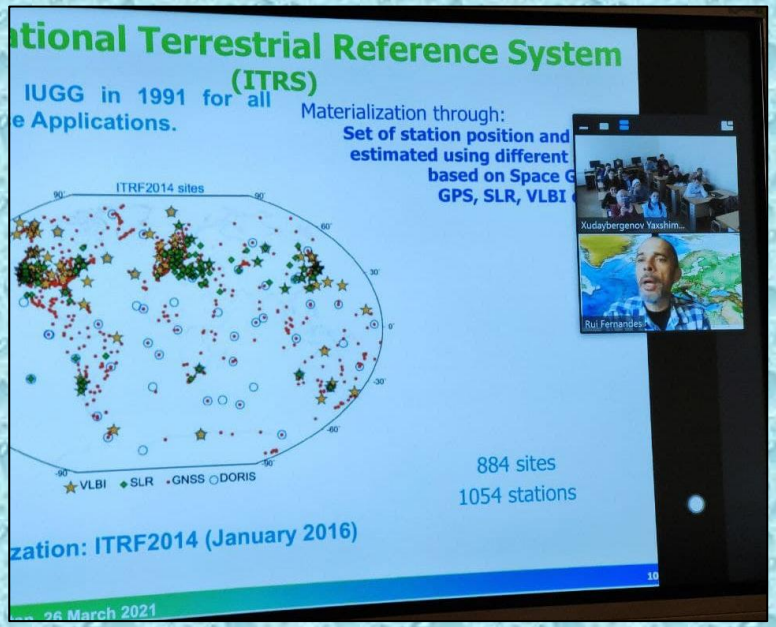
named after Mirzo Ulugbek,

Uzbekistan

and

Space & Earth Geodetic Analysis Laboratory

Covilhã, Portugal



Benchmark reconnaissance

In the future

- **to improve a classical geodetic network for seismic region**
- **to work out GNSS network for geodynamic polygon**
- **to investigate trilateration method**
- **to determine changing of coordinate system**
- **to create digital elevation model of seismic region**

GNSS network of Uzbekistan

CATS network (Uzbekistan)(1992-1996)

Conclusion

Establishing a connection between modern vertical movements of the earth's crust and tectonic movements of past geological periods allows us to reveal the patterns of change in the fault. To monitor changes, a regional tracking system for geodynamic phenomena should be developed using high-precision geodetic and GNSS measurements.

Publications

1. Kh. Muborakov, E. Mirmakhmudov, A. Ruziev, B. Komilov, B.Toshonov, *Using GNSS for education at national university of Uzbekistan*. Science and Education in the modern world: Challenges of the XX1 century. Nur-Sultan, Kazakhstan, December (2019).Pp.43
2. Mirmakhmudov E.R., Makhamatova V.U. Changing the geographic coordinates of Uzbekistan. 2021. Tashkent.25-26.03. 2021. Pp.580-588
3. Mirmakhmudov E. GNSS in Uzbekistan. The 4 th*EUPOS*® Council and Technical Meeting, 21-22 November 2017, Bratislava, SLOVAKIA.
4. Niyazov V., Makhmatova V., Toshonov B. Preliminary reconnaissance of points of geodynamic polygon "Tavaksay". «Science and Education in the modern world: Challenges of the XXI century». Nur-Sultan. Kazakhstan.April, 2021.
5. Mirmakhmudov E,, Niyazov V., Makhamatova V., Muminova N. Analysis of changes in the coordinates of the "Tavaksay" geodynamic polygon. E3S Web of Conferences. Volume 310 (2021). Annual International Scientific Conference "Spatial Data: Science, Research and Technology 2021". Moscow, Russia, May 24-26, 2021. https://doi.org/10.1051/e3sconf/202131003002

Thank you

for

your attention