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Editorial

Indian Geographical Society (IGS), established in 1926 organised online seminar on development of Geographic related societies in September 2020. GEMS joined this and made presentation also. A brief report on this by Dr V.Raghava Swmay appears in this issue under Student Forum.

Technology is rapidly increasing. Read about Photogrammetry with UAV and mobiles (GIS).

Working Group on Policy and Legal Frameworks for Geospatial Information Management set up by United Nations is an indication of world's concern on policy issues.

Dharani portal is being launched by gov of Telangana in October 2020 containing details of Land Records. Read an article on this topic. Hope this step will benefit land owners by introducing transperancy.

Uber India's Global Scaled Solutions (GSS) team has been working with maps to imrove customer service. Read how they are working.

Read about national level GIS enabled land bank initiated by Govt. of India. Report on webinar organised by GeoMap Society in August 2020, included in this issue, assumes importance particularly the content of presentation by Maj Gen R.Siva Kumar, former head of National Spatial Data Integration (NSDI). GEMS will host webinar every second Friday at 6 pm. On 9 Oct 2020 Friday, presentation will be on Land Records. For subscription and more details send email to geomapsociety@gmail.com

Content

Geospatial Science & Technology approved as a subject in UGC-NET & GATE

Based on the approval given by the All India Board of Post Graduate Education & Research in Engineering & Technology,The All India Council for Technical Education (AICTE) vide lt.dt.04Sept.2020, has approved the inclusion of Geospatial Science and Technology as a subject in GATE and the NET. Students appearing in NET for Junior Research Fellowship (JRF), and for Lectureship in universities and colleges, including IIT's and NIT's, will now be able to take up the newly added subject. The inclusion of the subject will benefit students and help in the " *Evolution of Geospatial Ecosystem in the Country"*.The inclusion of the subject was approved based on the recommendations of the National Geospatial Task Force Report, Ministry of Education, Department of Higher Education, GoI, 2013 (*www.educationtimes.com*) *dt 28thSept.2020*

Student Forum

Indian Geographical Society (IGS),Chennai took the initiative to assemble, network and discuss the issues and prospects for symbiotic development of all geographic and allied institutions & societies in the country, on a single platform. These which are sizable in number in the country are some which are very old and some relatively new. Each of them carry multi-faceted activities, publish journals, reports to spread the common cause to popularise geography at in schools, colleges and at professional level. Towards this, the IGS organised a national level online meet on, 'Development of Geographical Institutions in India' from 4-7th September,2020.

Around 60 institutions & societies in the country took part in the four day online meet. GeoMap society was also invited along with the others. Each of them were given 10 broad common points for presentation and discussion, which include genesis of society, executive council, list of members, details of competitions, seminars, awards, list of publications, views & bookmark of activities from NEP-2020 etc. GeoMap society presented its activities and participated in the discussions, as well. The list of various associations in the country who have participated is shown in the Map (sl.no 37). The *'Certificate of Appreciation'* received by the GeoMap Society from the organisers of the national meet is shown below. GeoMap society express its thanks to the organaisers for extending the invitation to participate in the national meet. The full details of the event can be accessed from *(www.igschennai.org).*

i) Map
ii) Certificate

Integrating UAV-based Lidar and Photogrammetry

https://www.gim-international.com/content/article/integrating-uav-based-lidar-and-photogrammetry - *19/05/2020*

Dense 3D Point Cloud Generation with Ultra-high Precision

Norbert Haala, Michael Kölle, Dominik Laupheimer

Recent unmanned aerial vehicle (UAV or 'drone') platforms jointly collect imagery and Lidar data. Their combined evaluation potentially generates 3D point clouds at accuracies and resolutions of some millimetres, so far limited to terrestrial

data capture. This article outlines a project that integrates photogrammetric bundle block adjustment with direct georeferencing of Lidar point clouds to improve the respective accuracy by an order of magnitude. Further benefits of combined processing result from adding Lidar range measurement to multi-view-stereo (MVS) image matching during the generation of high-precision dense 3D point clouds.

The project was aimed at the area-covering monitoring of potential subsidence of about 10 mm/year by a

LIST OF GEOGRAPHICAL ASSOCIATIONS IN INDIA

S.No	Name
11	Association of Population Geographers of India
12	Bhshwara Rayalaseema Geographical Association
13	Allahabad Geographical Society, Allahabad
14	Indian Institute of Geomorphologists
15	Allahabad Indian Society of Spatial Scientists
16	Varanasi North-East India Geographical Society
17	Indian Council of Geographers, Patna
18	Patna Association of Geographical Studies, Delhi
19	Association of Geographers in Bihar and Jharkhand
20	Geographical Society of Arunachal Pradesh
21	Itanagar Geographical Association of Mizoram
22	Geographical Society of Northeastern Hill Region
23	Guwahati Rajasthan Geographical Association
24	Shillong Geographers Association, Goa
25	Association of Bengal Geographers, Burdwan
26	Association of North Bengal Geographers
27	Kolkata Institute of Indian Geographers, Pune
28	Himalaya SamkshaParishad, Kolkata
29	Geographical Society of India, Kolkata
30	Kolkata Karnataka Geographers Association
31	Institute of Landscape, Ecology and Ekistics
32	Indian Geographical Foundation, Kolkata
33	Eastern Geographical Society, Bhubaneswar
34	The Bombay Geographical Association, Mumbai
35	Deccan Geographical Society, Pune
36	Konkan Geographers Association of India
37	GeoMap Society (GEMS), Hyderabad
38	Telengana Geographical Society, Hyderabad
39	Sindhudurg Maharashtra Bhugolshastra Parishad
40	Tirupati Regional Science Association, India
41	The Indian Geographical Society, Chennai
42	Union of Geographic Information Technologists
43	Kerala Geographical Society, Palakkad

S.No	Name
1	Himachal Pradesh Geographical Society, Shimla
2	Chandigarh Association of Professional Geographer
3	Delhi National Geographical Society of India
4	Association of Punjab Geographers, Patiala
5	National Association of Geographers, India
6	Association of Geography Teachers of India -Trust,
7	Indian Environment Society, Delhi
8	Aligarh Geographical Society, Aligarh
9	Association of Marketing Geographers of India, Go*
10	Uttar Bharat Bhoogol Parishad, Gorakhpur

0   250   500
Kilometers

Compiled by The Indian Geographical Society

repeated collection of very accurate and dense 3D point clouds. The considerable size of the test site in

Hessigheim, Germany, prevents terrestrial data capture. As visible in Figure 1, the site consists of built-up areas, regions of agricultural use and a ship lock as the structure of special interest.

> **Recent unmanned aerial vehicle (UAV or 'drone') platforms jointly collect imagery and Lidar data**

Figure 1: Test area at the Neckar River in Hessigheim, Germany.

For traditional monitoring, a network of several pillars was established in the vicinity of the lock. As depicted in Figure 2, photogrammetric targets signalized the pillars to make them available as check and control points for georeferencing. For UAV data collection, a RIEGL

RiCopter octocopter was used equipped with a RIEGL VUX-1LR Lidar sensor and two Sony Alpha 6000 oblique cameras. With a nominal flying altitude of 50m above ground level, a strip distance of 35m and a scanner field of view (FoV) of 70°, the system captured 300-400 points/m² per strip and 800 points/m² for the entire flight block due to the nominal side overlap of 50%. The flight mission parameters resulted in a laser footprint diameter on the ground of less than 3cm with a point distance of 5cm. The ranging noise of the scanner is 5mm. The trajectory of the platform was measured by an APX-20 UAV GNSS/IMU system to enable direct georeferencing. The two Sony Alpha 6000 oblique cameras mounted on the RiCopter platform

GIS on iPads

Source: Japanese City Performs Field Surveys Using GIS on iPads - 10/09/2020

https://www.gim-international.com/content/news/japanese-city-using-gis-on-ipads-for-field-survey?utm_source=newsletter&utm_medium=email&utm_campaign=GIM+International

The City of Tamba in Hyogo prefecture, Japan, performs field survey work using a mobile GIS application designed for Apple iPad tablet computers. The application, called Mobile Matilda, has been developed by an Osaka-based GIS solution specialist, Tsukasa Consulting, using the TatukGIS Developer Kernel 11 (for Delphi edition) with the Embarcadero FireMonkey framework. The mobile application compliments desktop and web-based versions of the Matilda software that are enabled with more features.

Unlike web applications, Mobile Matilda can operate in a local (off-line) environment because map layers and data are read from the iPad memory. Users can update records in the field for later synchronization to the desktop or server via a secure Wi-Fi or GSM connection, when available. TatukGIS development tools enable efficient storage of even huge GIS datasets as SQLite database layers on iOS and Android devices.

A mobile map project can also incorporate information streamed via the web, such as TatukGIS hosted OpenStreetMap web tiles as a background layer.

Field surveys conducted by the Tamba government often involve assets such as vacant houses and solar power generation facilities. In recent years, unoccupied houses left unmanaged have become a major issue for the prevention of crime and disasters, requiring municipal governments to better understand and manage this problem. Investments in solar power facilities must be verified and inventoried to qualify for government financial subsidies.

Adding real-time survey data to the map

In the past, field surveys required personnel to carry a camera, a map, and paper-based inventory records into the field to collect information, and then return to the office to associate newly collected data with already existing information. The process was labor intensive and prone to errors. The resulting data was not always usable in an efficient manner. With the Mobile Matilda application, observed survey information, photographs, and map figures are electronically associated to the map while on site. For improved workflow, survey assignments can be set up in advance to enable the field researcher to access relevant records simply by tapping and selecting on the tablet computer. The iPad's GPS information can be used to easily center the map (or aerial photography layer) to the user's present position.

A user can enter new vector points which can be edited such as to change its position, add attribute information, or specify a direction (e.g., viewing angle). Photos can be added using the iPad's built-in camera or a linked 360-degree panoramic camera.

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Last updated: 10/09/2020

Authoritative Geospatial Data

Source: EuroGeographics Pledges Support for UN-GGIM Focus on Authoritative Geospatial Data - 09/09/2020
https://www.gim-international.com/content/news/japanese-city-using-gis-on-ipads-for-field-survey?utm_source=newsletter&utm_medium=email&utm_campaign=GIM+International

EuroGeographics has welcomed the intention of the UN-GGIM to focus on issues concerning authority, custodianship and legal issues for data for the public good.

The association, which represents Europe's National Mapping, Cadastral and Land Registration Authorities, has pledged to support the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) Working Group on Legal and Policy Frameworks in its aim to better understand the definition and importance of authoritative data. It is also offering access to its extensive network to help gather examples of best practice and to facilitate information sharing.

Awareness of the importance of good quality data
Mick Cory, Secretary General and Executive
Director, EuroGeographics says: "The critical importance of trusted geospatial information to support decision-making at all levels and many areas of national and international concern is demonstrated by the current Covid-19 pandemic. However, there remains insufficient awareness of the importance of good quality data to addressing global challenges and addressing national and global economic and social goals."
"A clear policy for geospatial information management, backed up by a robust legislative framework with appropriate resource, are significant enablers to effective and efficient geospatial information management, as envisaged as part of the Integrated Geospatial Information Framework (IGIF). We warmly welcome, and stand ready to assist the Working Group in this work which will help the implementation of the IGIF and is a significant contribution to the global geospatial community."

EuroGeographics is an observer on the Working Group, which was formally renamed at the tenth session of UN-GGIM and is now known as the Working Group on Policy and Legal Frameworks for Geospatial Information Management to align with IGIF
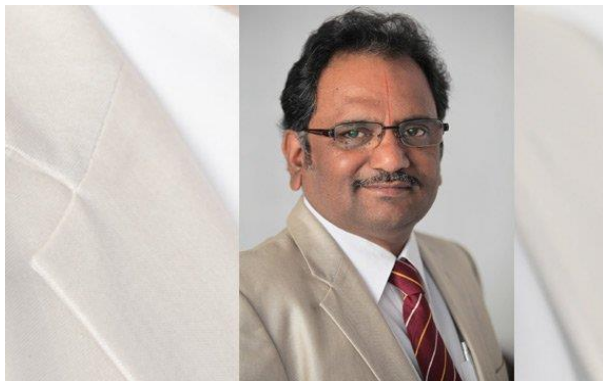
Strategic Pathway 2 – Policy and Legal.
Last updated: 10/09/2020

Telangana Land Records

Source: Telangana: Transparency in land records, a key reform

Telangana Rights in Land and Pattadar Pass Books Act, 2020 intends to break secrecy of records

By | Prof Madabhushi Sridhar Acharyulu | Published: Telangana Today 12th Sep 2020

Prof Madabhushi Sridhar Acharyulu

You purchase the property, but the revenue officer decides the title and tells you where your property is. This was the Raj going on in whole of our country and especially in Telangana. The revenue officers rule the roost, not your choice.

Registration Department consists of glorified 'gumastas' (clerks) who record a transaction in a register (that is how the name came). They give a stamped paper documenting 'A' transferring a property to 'B'. Their seal will not seal the disputes. They do not guarantee or assure the genuineness of the title. But they are regarded like the most honourable magistrate certifying your transaction. One cannot understand why the sub-registrar should sit on a high pedestal while buyers and sellers should fold hands and stand or sit at a lower level as if they stood before a court of law. Are we civilised? Is it not British Raj over masses – both literate and illiterate?

Unless the buyer produces a properly registered deed, he cannot exploit the value of the property, nor generate any loan on it. A government department that is expected to facilitate, regularly exploits. People fear the Revenue and Registration departments as twin dangers to their hard-earned money. Both are very honourable departments, at origin, that underwent metamorphosis into awfully dishonest which could be easily manipulated. Not only the law (Registration Act 1908), the mindset also is 112-year-old. Fortunately, they need not wear white wigs like British judges. One common reason that made these two departments reap huge profits every day is the secrecy of records and absolute lack of transparency.

The Telangana Rights in Land and Pattadar Pass Books Act, 2020 intends to break this secrecy and remove the power of these two departments that made them corrupt to the core. Section 3 says: "(1) The Record of Rights in all lands in every village of the State shall be prepared and maintained digitally in a

centralised storage with particulars, (a) The names of all persons who are pattadars of lands; (b) survey numbers and extents of each pattadar; (c) such other particulars as may be prescribed".

Accessible portal

Chief Minister K Chandrashekhar Rao, the architect of this Bill, assured the Legislative House on September 9 to make this land records portal called 'Dharani' accessible to world at large. With the advent of Dharani, the secrecy of details of open land, which could be seen by all, will go, and transparency ushers in. All depends on 'Dharani'.

There were strong speculations that Revenue Department would be totally removed or replaced or reformed. The Bill of 2020 removed the lower rung employees — village revenue officers — from land-related duties but doubled the functions of MROs or tahsildars. The Revenue and Registration duties are merged at the level of MRO, as the tahsildar himself must perform the task of registering.

Is it not merger of two corrupt powers? Answer is, the power has not increased, but duties certainly have doubled. Registrar has to simply allot slot to parties to transfer property, when they arrive at that slot, register it online and update the changes on Dharani portal followed by mutation of records and issuance of a document to

that extent besides delivering the registered deeds.

Another major assurance of the CM is that the Dharani and registration data is so programmed that non-transferable lands like government lands, assigned plots etc will not be accepted for registration. The earlier transactions on the property also get reflected the moment the property is identified, which prevents double and deceptive registrations.

The law does not assure the genuineness of the title but ensures non-registration of unregistrable properties like Taj Mahal or Charminar or railway stations of Delhi or Secunderabad. All depends on 'Dharani', which is expected to synchronise the big data of entire properties in Telangana after digitisation.

When the property is not being sold or purchased but inherited from deceased, the role of tahsildar or registrar is again totally diminished. Now, with this new law, tahsildar must simply issue fresh passbooks or title deeds to the heirs of the deceased, provided they submit a joint agreement of all members of family, i.e., dividing and allocating shares among heirs. If they cannot come together or fail to arrive at joint settlement, registrar has nothing to do, except to wait for the verdict in civil dispute.

Non-agricultural lands, properties

Similar provisions are being made for non-agricultural lands and properties

like plots, flats, houses etc at three levels – Gram Panchayat, Municipality and Greater Hyderabad Municipal Corporation. At all these levels the officers must update the details after the registered transaction and issue mutation instantly. Four legislations are necessitated to amend Panchayati Raj, Municipality and Greater Hyderabad enactments. The fifth one is a brief legislation to abolish village revenue officers ensuring alternative employment to them in other departments along with the offers of resignation or VRS.

Another major reform proposed in this Bill is that the Revenue Department not only grants title deed to new owners of agricultural land, but also sits over judgment about the validity of that title in a revenue court, which works at MRO, RDO and Additional Collector level. After hierarchy of these three revenue courts hear the disputes, the case can also go to regular courts. It is estimated that 66 per cent of civil disputes pending before the courts are about land records and controversies.

This not only burdens the judicial system but also causes huge expenditure to governments and to the parties to litigation. If a transparent system is introduced, the burden of judiciary could be substantially reduced. Abolition of three tier revenue courts is a big change. The Bill contemplates some fasttrack tribunals to decide pending cases filed under earlier land records law, which is being replaced now.

The reforms can succeed when a comprehensive survey of land records is done along with a transparent internet data base where the land rights related details are made available and accessible to all from anywhere.

-Prof Madabhushi Sridhar Acharyulu, Former Central Information Commissioner and Dean, School of Law, Bennett University

Uber map updates

Source: India leads Uber map updates across 150 cities globally during lockdown
https://www.expresscomputer.in/news/india-leads-uber-map-updates-across-150-cities-globally-during-lockdown/60778/

< ..

EW DELHI: Uber's India engineering team has ..

Uber India's Global Scaled Solutions (GSS) team based out of Hyderabad and Bangalore has led map updates across more than 150 cities across the world, factoring in road closures, new routes and Covid containment zones during the recent lockdown. The GSS team has been at the forefront of transforming novel ideas into workable solutions in a time sensitive manner by leveraging innovative technologies. Over the past few months, the team has led more than 200 localisation projects, including in-app messages in

local languages to keep riders and drivers updated about new offerings, closure of services, various earning opportunities and financial assistance for drivers. It has also improved product launches through data engineering and analytics programs and scaled quality assurance for all products and features launched globally, from India.

On the safety front, the GSS team developed a mask verification feature in the App. This new technology verifies if drivers are wearing a mask by asking them to take a selfie before they go online. In May, Uber made it globally mandatory for all riders and drivers to wear a mask or a face covering during a ride.

Leading GSS teams globally, Megha Yethadka – Director, Program Management, Tech said, *"Our engineers and tech program managers across countries have been working tirelessly to address various challenges presented by the COVID-19 outbreak. From creating new products to launching new business units quickly, the Uber tech team has been steering varied technology innovations enabling Uber to rapidly cater to the needs of cities and citizens around the world. GSS has helped accelerate these efforts from our hubs in Hyderabad and Bangalore."*

GSS runs scaled programs for multiple products and businesses including Rides, Eats, Freight, Advanced technologies and Uber for business. Eighty percent of the

GSS team is based out of Hyderabad and Bangalore, consisting of more than 100 program managers, engineers, analysts and product managers, working on transforming digital assets for Uber, accelerating the product development lifecycle and enabling products and businesses to scale globally in line with its aim of building in India for the world.

If you have an interesting article / experience / case study to share, please get in touch with us at editors @expresscomputeronline.com

The British Model

While India followed the British policy of restricting all topographic maps for "official use only" even after the Independence, the British government's own 224-year-old mapmaker, the Ordnance Survey, has long graduated from producing difficult-to-fold pink and orange maps to being a frontrunner in digital mapping and location data. Their data gets updated 10,000 times a day through aerial surveys by two aircraft and 300 surveyors on the ground, and can be bought online. Moreover, to expand the use of "location" in the United Kingdom's innovation community, the organization has set up a data lab called Geovation Hub. Here, entrepreneurs are provided with desk space, expertise and £20,000 a year to come up with location-based ideas.

Source: Internet

Humour - sarcastic

Discussing violations Source: Internet

Report on GeoMap Society webinar held on 11 Sep 2020

MAPS & GIS APPLICATIONS FOR NATIONAL DEVELOPMENT

By Maj Gen Dr R.Siva Kumar, President IIC,Technologies, Hyderabad

GeoMap Society has newly initiated the, *"Discussion Forum"* using the Webinar platform. The forum will enable,' Presentation & Discussion' by eminent persons in academic, geospatial industry, government, practitioners and policy makers.The initiation to this activity has come from Prof I V Muralikrishna. The maiden event was supported by Centre for Applied Research (CARG), Indian National Cartographic Association (INCA), Hyderabad Chapter & Innovation, Co-Innovation Research in Geoinformatics (ICORG),Hyderabad. The first talk in the series was delivered by Maj Gen Dr R Siva Kumar on, 'Maps & GIS Applications for National Development on 11 September, 2020. A copy of the flyer is attached (fig 1)

Dr V.Raghava Swamy informed all that ‡ GeoMap Society (GEMS) is included in the list of 60 Associations under the umbrella of list of Geographical Institutions in India. This is by virtue of participating & presenting the activities of GeoMap Society during the National Online Meet held from 4-7, September 2020. The Pan India meet was organised by The Indian Geographical Society (IGS), Chennai. .The copy of the certificate of appreciation presented by the IGS is enclosed (Figure 2)

Mr G S Kumar informed that GeoMap Society (GEMS) along with several

professionals has been actively engaging in pursuing many programs,since 1990. He said, impact of its programs is slow but is steadily moving forward. He said,—the very recent announcement on the changes in Land Bills (2020) is an important initiative taken by the Governments of Telangana & AP. He said, hopefully, this will be the topic for presentation in the next month's (October) webinar of the society. He informed that GEMS took a decision to hold webinars every month, on second Friday at 6pm.

Salient points from presentation by Maj Gen Dr R.Siva Kumar, are :

- Survey & scientific mapping started in India long back.

- 1:50,000 scale topographic mapping of whole country with vast area, huge population, lakhs of villages, cultivable land, land use practices has been a huge task. Thematic mapping of waste lands & estimations from satellite data was carried by then, NRSA (Dr DP Rao & team) .. is in itself an achievement. Both these efforts have emerged for building a Decision Support Systems (DSS)

- Despite it,we have not been able to develop to make a proper use of the GIS ready data

- We missed out on using Crowd sourcing, Asset mapping, Location Based Services (LBS) etc. in developing Digital India.

- 9 pillars of Digtal India have been identified by the govt. E-governance is a number 4 pillar.

Karnataka has made a good progress in adopting digital technology.

- Jack Dangermond founder president of ESRI stressed on better transparency, citizen services and use of GIS in land records.

- Number of maps on different scales indicates the huge magnitude of task in preparing them. There are 5060 maps on 1:50,000 scale; 19,343 maps on 1:25,000 and 1,32,000 maps on 1:25,000 scale.

- Issues like datum, projection, interoperability, accuracy, content, policies, meta data are some of the bottle-necks in effective use and positioning of GIS technology for mapping.

- We have several policies like National Map Policy, Remote Sensing Data Policy, Data sharing policy. We need to rationalise all of them

- Under the web map, open map series is available in digital form for public use.

- Bhuvan Portal – Indian Remote Sensing data is rich and can be used for many applications. We produced maps in regional languages also. We also made digital maps for land records and Municipal use. Delhi's large scale GIS data under DSSDI was generated, but could not be utilised to the extent it should have been. Maps at half metre contours, cadastral maps, and other useful maps have been made as pilots. We need to move beyond pilot studies and generate a Pan India data base on a very large horizon.

- Years back, 7 specified organisations were permitted to digitise SoI maps. Another organisation wanted to be included in the list. Government refused. They approached the Minister. He overruled the official stand and the organisation was given permission. This is an example of political will.

- He supported the, use of GIS mandatory for all area related projects in the country.
- With entry of Drone technology for mapping, there is a need to adapt ourselves

Prof IV Muralikrishna, who organised the meet, mentioned about wide ranging use of GIS. He stressed on *"integration of datasets"* .. Though, the first webinar, participation by members of society and many professionals is very encouraging. Thanks to Dr Nagaraja for enabling INCA as partner to this webinar..

Next webinar is on Friday 9 Oct 2020, on Land Records and Title

Interested members can visit the web portal, *"geopediasociety.com"* for participation in the webinar and for Maps Today magazine of GEM

Overview

PHOTOMOD®

RACURS, Russia

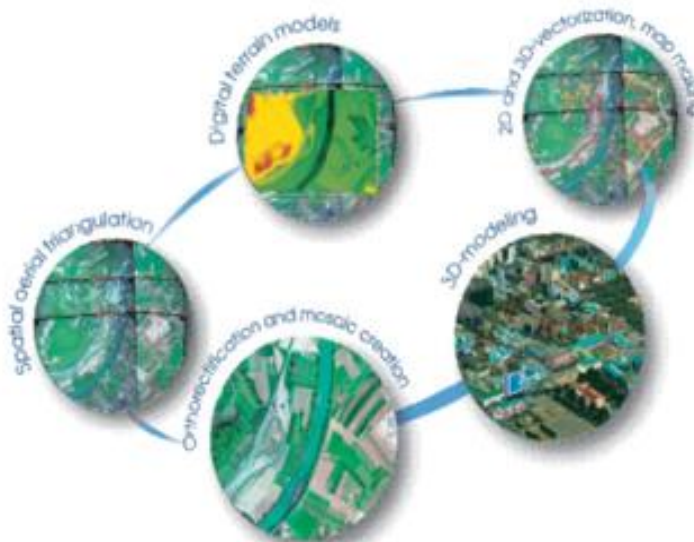The PHOTOMOD software family comprises a wide range of products for the remote sensing data photogrammetric processing. This state-of-the-art software allows the extraction of geometrically accurate spatial information from almost all commercially available types of imagery, whether obtained by film or digital cameras, UAS, high resolution satellite scanners.

PHOTOMOD's flexible modular architecture and powerful import/export tools permit a variety of configurations: **Complete Digital Photogrammetric Workstation** (standalone configuration), high productivity distributed network environment for accomplishing large projects, complementary workplaces that can be used along with third-party systems to increase the overall productivity during the most time-consuming and labor-intensive operations like feature extraction and DTM creation.

Today PHOTOMOD is the most popular digital photogrammetric software in Russia and is also used in 70 countries all over the world. PHOTOMOD is the only digital photogrammetric system with the Russian Federation Ministry of Defense certificate and also the main digital photogrammetric software for the Federal Space agency of the Russian Federation (ROSCOSMOS) and Russian Federal Service for State Registration, Cadastre and Cartography (ROSREESTR)

General questions: info@racurs.ru