

# EU PROJECT CIPRAS

*Organization and improvement of SAR in non-urban and rural areas,  
ruins and collapsed objects*

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ECHO/SUB/2015/721704/PREP06

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## ***Chapter 1***

# ***European model of project funds and grants***

***One of them are EU ECHO grants***



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# About EU ECHO

- **Directorate General for Civil Protection and Humanitarian aid of European Commission**
- Provides humanitarian aid world wide and civil protection assistance in EU
- European Civil protection mechanism is organized through the networked cooperation of national directorates and central capacity, what include
  - ERCC - Emergency Response Coordination Centre, a 24/7 hub monitoring occurrence of all kinds of possible natural and man made disasters
  - Real Time WEB based Monitoring and Alert Services for extreme weather, forest fires, earthquakes and floods
  - EERC - European Emergency capacity consist of voluntary pool of CP experts, rescue troops and special equipment. Special troops are called „Modules”
  - Mountain rescue is still nor part of the Modules, but could be established and registered



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# EU ECHO home WEB page

The screenshot shows a web browser window with the address bar displaying "ec.europa.eu/echo/". The page title is "Humanitarian Aid and Civil Protection". The main header features the European Commission logo and the text "HUMANITARIAN AID AND CIVIL PROTECTION". Below the header is a navigation menu with links: HOME, WHO WE ARE, WHAT WE DO, WHERE WE WORK, PARTNERSHIPS, FUNDING & EVALUATIONS, RESOURCES & CAMPAIGNS, and NEWS & STORIES. The "NEWS & STORIES" section is active, showing a grid of links: About ECHO, Accountability, Jobs and opportunities, and FAQs. Below this, there is a "NEWS" section with a featured article titled "New EU knowledge centre for improved disaster risk management" dated 01/10/2015. The article text states: "The European Commission has launched a new knowledge centre to support EU Member States in responding to emergencies, and preventing and reducing the". To the right of the news section, there are social media links under "FOLLOW US", a "SUBSCRIBE" button, and a "COMMISSIONER STYLIANIDES" section with a photo of the commissioner. At the bottom of the page, there are logos for the European Commission, the Croatian Mountain Rescue Service (CPSHJE), and the Mountain Rescue Service of Serbia, along with the text "PROJECT CIPRAS ECHO/SUB/2015/721704/PREP06" and "EUROPEAN COMMISSION - EU ECHO CROATIAN MOUNTAIN RESCUE SERVICE MOUNTAIN RESCUE SERVICE OF SERBIA".



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# EU ECHO Technical Modules

Technical Assistance Support Teams (TAST) and Modules are pre-defined, specific and interoperable assistance capabilities that can be deployed at short notice (max. twelve hours of a request for assistance). TAST is a type of module that provides technical support to an On- Site Operations Coordination Centre (OSOCC).

1. High Capacity Pumping
2. Flood Containment Module
3. Flood Rescue Module using boats
4. Water Purification
5. Medium USAR
6. Heavy USAR
7. Aerial Forest Fire-Fighting using helicopters
8. Aerial Forest Fire-Fighting using airplanes
9. Ground Forest Fire Fighting
10. Ground Forest Fire Fighting using vehicles
11. Advanced medical post
12. Advanced medical post with surgery
13. Medical aerial evacuation of disaster victims
14. Emergency temporary shelter
15. CBRN detection and sampling
16. SAR in CBRN conditions
17. Field hospital and  
Technical assistance support team (TAST)



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# EU ECHO Calls for proposals

- Every year ECHO publishes a number of calls for project proposals concerning a range of relief and civil protection efforts.
- Activities of interest are exercises, technological improvements, know-how transfers, cross-border cooperation, preparedness and prevention in protection of civilians and saving the life
- Candidates can be local governments, schools and science institutions, and any type of non profit organizations
- Mandatory prerequisite for submitting projects is that it must be proposed by consortium of two or more organizations coming from EU member states and several other.
- Grant budget for each project is usually up to 400.000 EUR



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# Structure of the project proposal

DEFINITION OF THE PROBLEM



EXPLANATION OF THE SOLUTION



PROJECT TECHNICAL ROLL-OUT  
PLAN (WPs AND TIME TABLE)



PROJECT FINANCIAL PLAN



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# One previous Project example

## EU PROTEUS – improvement of cooperation in cave rescue

- PARTNERS: Croatian Mountain Rescue Service and Cave Rescue Service of Slovenia
- PROBLEM – insufficient national capacities for very demanding cave rescue operations (like Riesending Schachthoele cave, Germany 2014)
- SOLUTION – series of workshops and exercises for harmonization of the rescue technic, production of manuals, knowledge exchange in medical doctrine, purchase of equipment, founded ECRA – European Cave Rescue Assotiation
- DURATION – two years, budget 400.000 EUR



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## *Chapter 2*

# PROJECT EU CIPRAS



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# Basic facts of the project

- Project coordinator: *Croatian Mountain Rescue Service (HGSS)*
- Associated Beneficiary: *Mountain Rescue Service of Serbia (GSSS)*
- Roll-out 01.01.2016 – 31.12.2017.

## PROJECT BUDGET

BUDGET OF THE ACTION					
Part A: Eligible cost categories	Rate %	€	Part B: Financing Plan	€	% of eligible costs
Personnel		93.016	Requested EC contribution	234.857	75,00%
Travel and subsistence		46.392	Contribution of the Coordinator	43.176	13,79%
Equipment		78.260	Contribution of the Beneficiary (ies)	35.109	11,21%
Sub-contracting / External assistance		41.100	Other sources of funding	0	0,00%
Other direct costs		36.650	Expected direct revenues	0	0,00%
Indirect costs / overheads	5,66%	17.725			
<b>TOTAL ELIGIBLE COSTS</b>		<b>313.143</b>	<b>TOTAL</b>	<b>313.143</b>	

### For information only

"In kind" contributions / costs not included in the budget	26.000
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# About beneficiaries

Both MRS-s are national voluntary organizations whose members are highly skilled mountain guides, rock climbers, cavers, skiers and similar.

Education and training period from the apprentice to the certified rescuer is lasting for tree years (summer course, winter course, cave rescue course and first medical aid)

After that is possible to take specialistic courses (Air Rescue, SAR management, Swift water rescue, Speleo diving rescue, advanced cartography)



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# Problem definition

Non-urban and rural areas of Balkan countries are long time exposed to continuous migration of young and workable people to the urban centers. Villages in rural areas become empty of fully active population, there are living now just old people. Social care, including suitable civil protection is poor and is mostly left to volunteers of Red Cross and Mountain Rescue Services. Real figures has shown that in these areas are annually performed about 260 different SAR operations per country. Last years additional problem brings development od adventure tourism in such areas.



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# Daily praxis

Professional emergency services operates just in urban areas and in rural areas such capacities are insufficient or does not exist at all. Usually, local population is left to it`s own self-help.

MRS are convinced to act in wilderness and, by it`s human approach, try to „cover this gap” on the principle of „good neighbor”, being aware that the mountain rescuers have much stronger capabilities than average citizens living there.

Consequently, states administrations have found solution by involving MRS-s as specialistic rescue forces in the ordinary national civil protection plan, but for MRS members Civil Protection is entirely new environment of actions.



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# Project objectives

CIPRAS project is focused on cross border cooperation between two national Mountain rescue services in know-how transfer and improvement of methodologies of management of SAR operations. Project activities include workshops, field exercises and test cases aimed to improvement of management of SAR operations in wildland, on the water, in snow conditions and in artificial constructions (ruins and collapsed objects).

Expected result shall be much more shorten rescue operation time and by this fact much more successful achievement of life savings.



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# Workshops – expert lectures

1. Organization of rescue in urban areas during large scale disasters, international cooperation and help in EU, personal behavior of rescuers (what is INSARAG)
2. Medical doctrine during large scale disasters, dangers and self protection, SAR management in large scale disasters
3. The role and training of SAR dogs and man/dog teams
4. SAR operations in non-urban areas - planning and management
5. GIS technology and digital cartography applied to SAR management

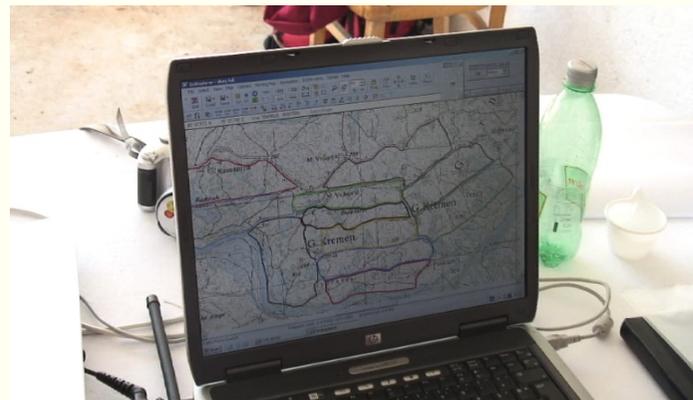


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# Practice and Exercises

1. Exercise of SAR management in non-urban areas
2. Exercise Man/dog team work
3. Exercise of SAR operation on the inland waters
4. Exercise of SAR operation in heavy snow conditions
5. Exercise of SAR operation in ruins
6. Final joint exercise of large scale
7. Statistical tracking and analyze od true events over 1,5 year, creation of Standardized SAR Report Form



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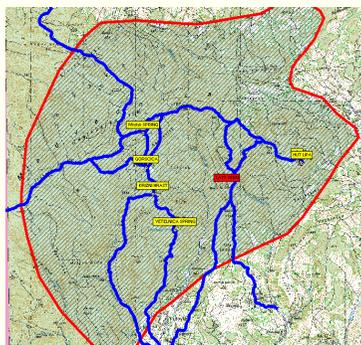
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# Equipment test and standardization

Purchase of specialistic equipment for dogs and dog handling, ICT equipment and safety work on the water

WS - Testing and selection of most suitable devices for underwater exploration (fish finders, archeologic echo locators, remotely controlled cameras - ROV)

WS - Benchmark test of most suitable GIS tools for SAR operation planning



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# Internat. conferences and SAR Manual

- Promotion of project idea and goals and received ECHO support, networking
- Production of standardized SAR educational material adopted to mountain rescuers and volunteers, main chapters include:
  - a) Initial profiling: Missing person questionnaire, Lost person behavior, Urgency determination
  - b) SAR operation planning: Search area analyses, Terrain depending SAR conditions, Weather depending SAR conditions, GSM location based support
  - c) SAR action management: Communication, probability prioritization, zoning, Team coaching, Tracking documentation, Involvement of additional volunteers
  - d) Urban Search and Rescue principles and recommendations
  - e) SAR toolsets and devices: GIS, GPS, cell phones, PLB, echo locators, IR cameras
  - f) Dog handling: basic rules when cooperating with search man/dog teams
  - g) Standardized SAR Report Form
  - h) Reports of equipment and benchmark tests with recommendations



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## *Chapter 3*

# SAERCH AND RESCUE METHODOLOGY OF CROATIAN MOUNTAIN RESCUE SERVICE



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# Some basic facts

- Search and rescue in wilderness is more than 50% of all other rescue actions of Croatian Rescue Service
- Almost every day is somewhere in the country in progress one search and rescue operation
- First modern approach to the management and execution of search operations in the wilderness was established 10 years ago after specialized training in Wales, UK, kept by Wales Mountain Rescue Service
- In this training we have met strictly defined set of operational steps and procedures based on number of statistical analyses and long time collected experiences.
- It was interesting that before this moment our search managers have intuitively run similar procedures but it was never established „recommended way of thing and work” , education program of younger colleagues and defined overall methodology.



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# SAR methodology and fundamental procedure of HGSS

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## Eighth steps of complete SAR operation management

- Alert acquisition and situational awareness
- Response urgency estimation
- Team invitation, set-up of operation base camp
- Lost person profiling
- Initial and midterm search phase
- Formal search phase
- Rescue
- Debriefing



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# Alert acquisition and situational awareness

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Calls for help are zoned to Counties and directed to the local Stations and arrives through the several channels

- Directly from the lost persons
- by 112 center
- from the family
- police and similar

Calls are taken over by cell phones of „persons of on duty” , each Station has one

In this very first moment of receiving call rescuer on duty shall to  
Estimate level of urgency of situation



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# Response urgency estimation

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This criteria is understandable by itself

- Children
- Ill and old persons
- bad weather conditions
- demanding terrain and environment
- Number of lost persons or victims, traffic accident (including aircrafts)
- Specific accident conditions



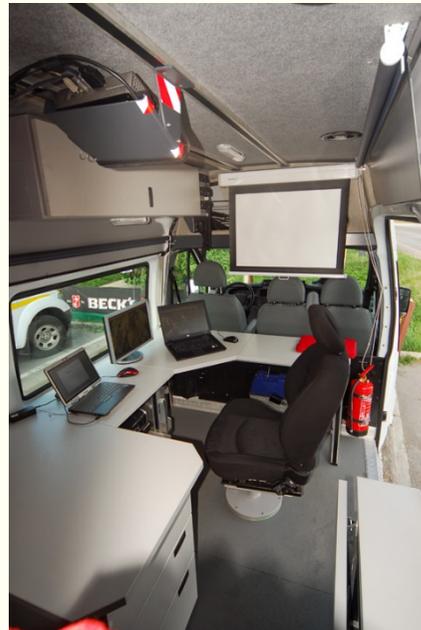
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# Team acquisition and base camp

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- Team members are invited from the list or by automated call machines, cooperation of couple of Stations is very often
- Manager can be „rescuer on duty” or someone invited from the SAR managers pool
- Selection of the location of the base camp is very important – close to the search area, close to the electrical grid, possibility to isolate camp from all visitors
- Our base camp is regularly built around the SAR command vehicle



# Lost person profiling

- This stage is most critical and most important for future search plan and overall success of operation
- Interviews shall be performed individually and separately with each person
- Apart of collecting fundamental information about lost person, there is plenty of information what are many times hidden by family or friends, wrongly presented, conditional opinions becomes firm facts, contradictory information from different sources etc,. This includes interests, experience, physical conditions, psychological profile, illnesses, capability of cooperation, daily behavior, probability of movements

Information and data collection, “last day activities”, influence of terrain, vegetation coverage and weather at the SAR operation are matter of structural analyses of collected data and building of “overall last day picture”



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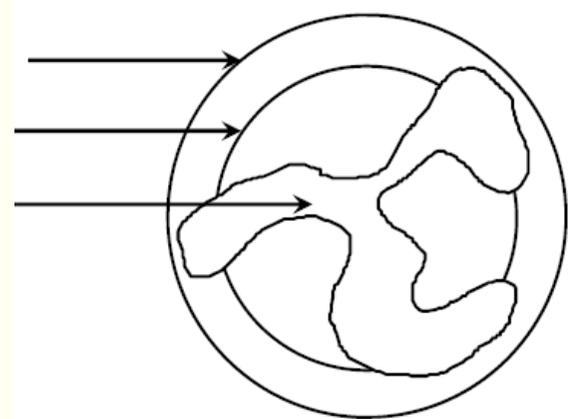
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# Initial and midterm search phase

- Initial phase is „fast response” action run immediately after arrival and collecting first information
- There is no sophisticated planning, just are covered zones with highest probability (point where is lost person last time seen or what was his/her destination). - Hasty search - Roads, creeks, rocks, channels, bridges, lakes, cottages and barracks and all other hot spots. Observation from the peaks, signalization and loud callings
- This stage is important for search dogs because the area is still not contaminated by other smells

Midterm phase also includes first results of situational analyses and basic search strategy

theoretical  
statistical  
subjective



# Formal search phase

- Final searching stage is established on clearly developed SEARCH STRATEGY
- Key components of the strategy are:
  - POA – Probability of Area – zone with the highest possibility for success, defined on the statistical figures related to the lost person behavior (personal profile) and „last day description”
  - POD – Probability of Detection – Defines level of chance to find lost person (collaborative, non collaborative).
  - POS – Probability of Success     $POS = POA \times POD$  the goal is to achieve the highest POS Score
- POA is based on PLS point „Person Last Seen” and LKP „Last Known Position”
- Point where search begins is called IPP „Initial Planning Point” and usually corresponds with PLS.
- Zooning – separation of the entire search area in smaller zones – GIS technology



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# Usage of applied GIS technology

- Search planning tool developed on the QuantumGIS toolset – (Open Code Solution)
- Core application is Search Template – predefined, semi automated tool what graphically produce complete search area zoning (POA) and IPP. It includes following inputs and outputs:
  - IPP and PLS points, found
  - Range of estimated lost person movements, based on Lost Person Behavior statistical values
  - GSM tower database and triangulation of azimuths of received cell phone signals, unfortunately autonomously only Cell ID supported allowed by operators
  - Map printouts at the paper
  - Creation of search zones and extraction to handy GPS devices
  - Import of acquired GPS field traces and entered points of interest
  - Statistics of search teams included in operation

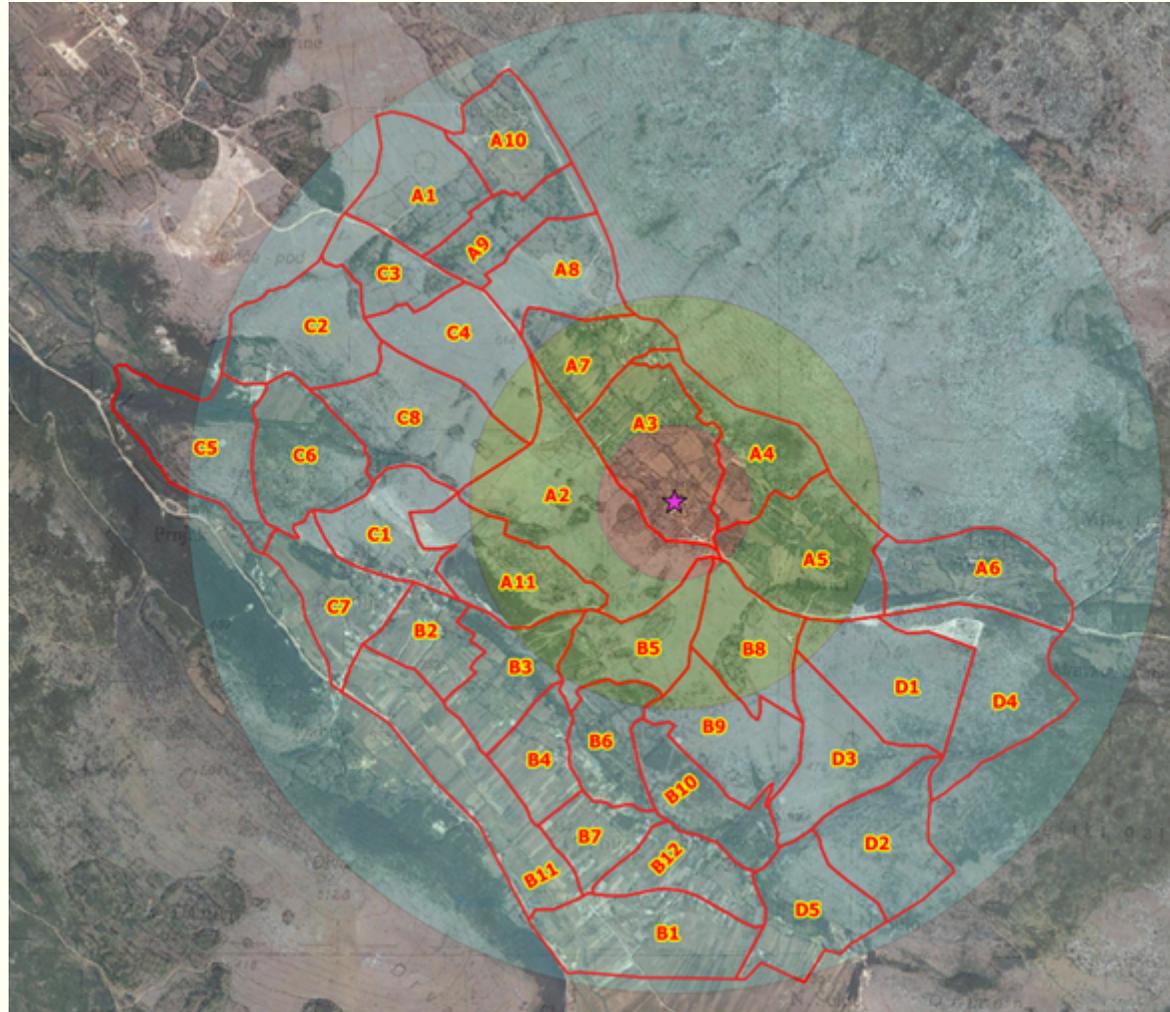


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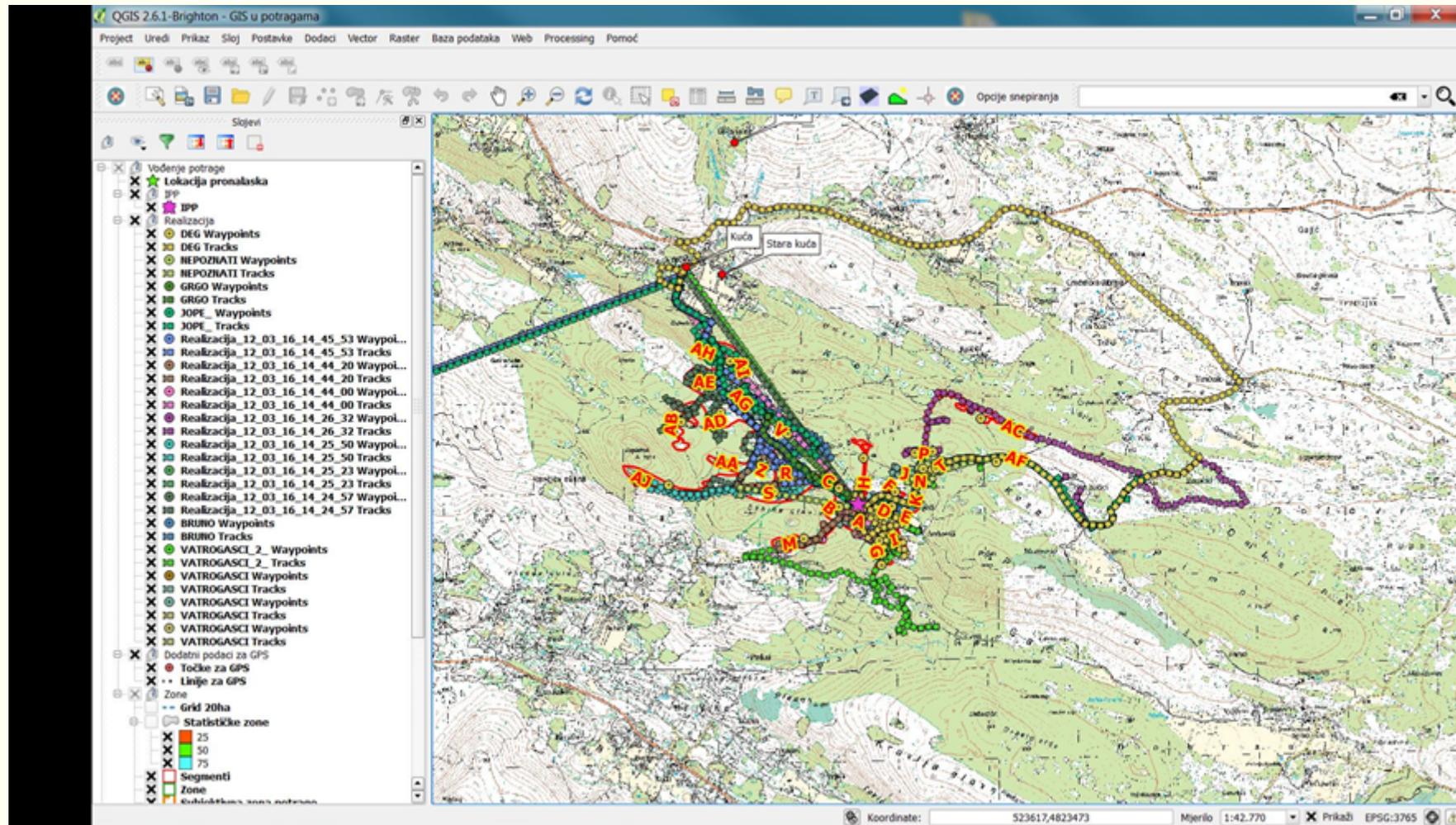
# Typical digital mapping – zoning on DOF



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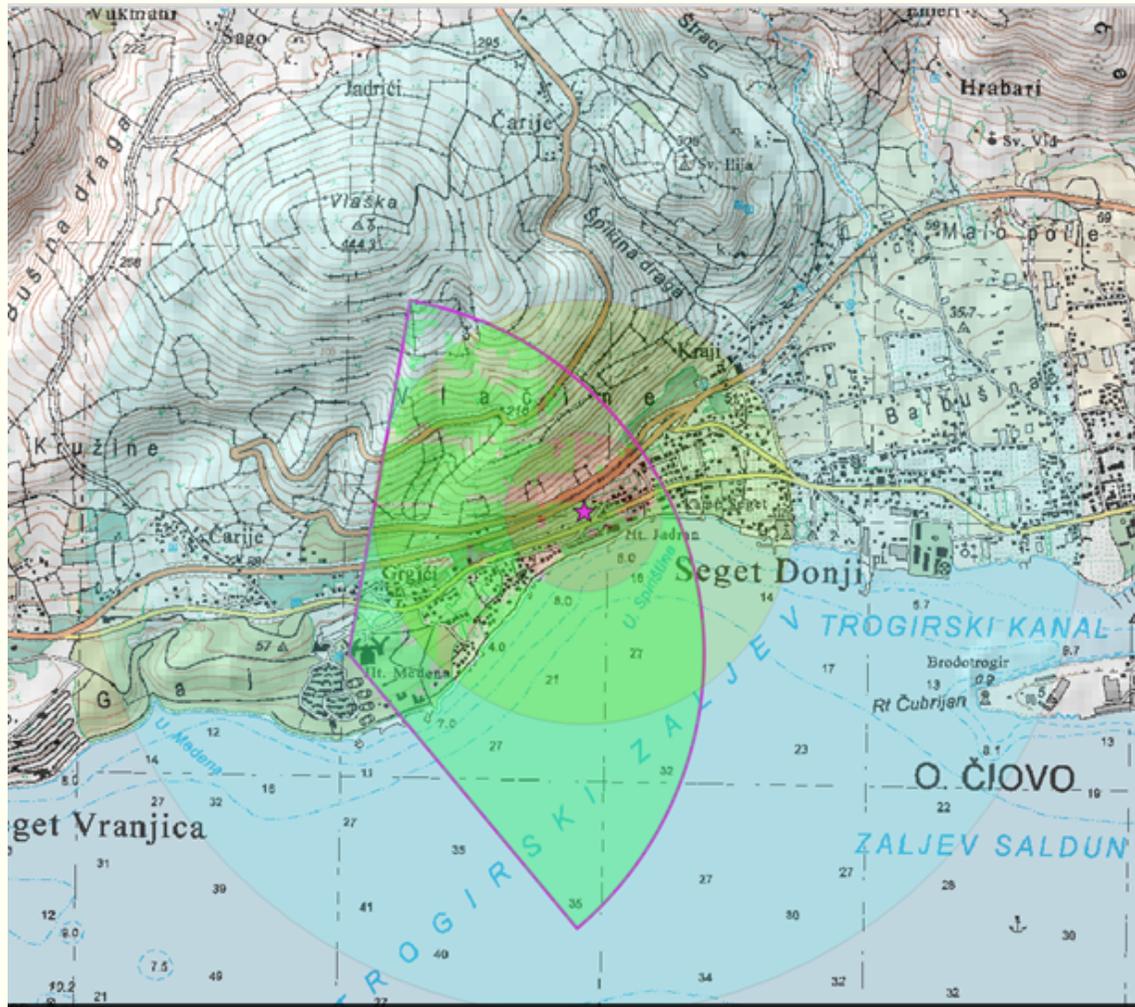
# Typical dig. mapping – SAR action summary



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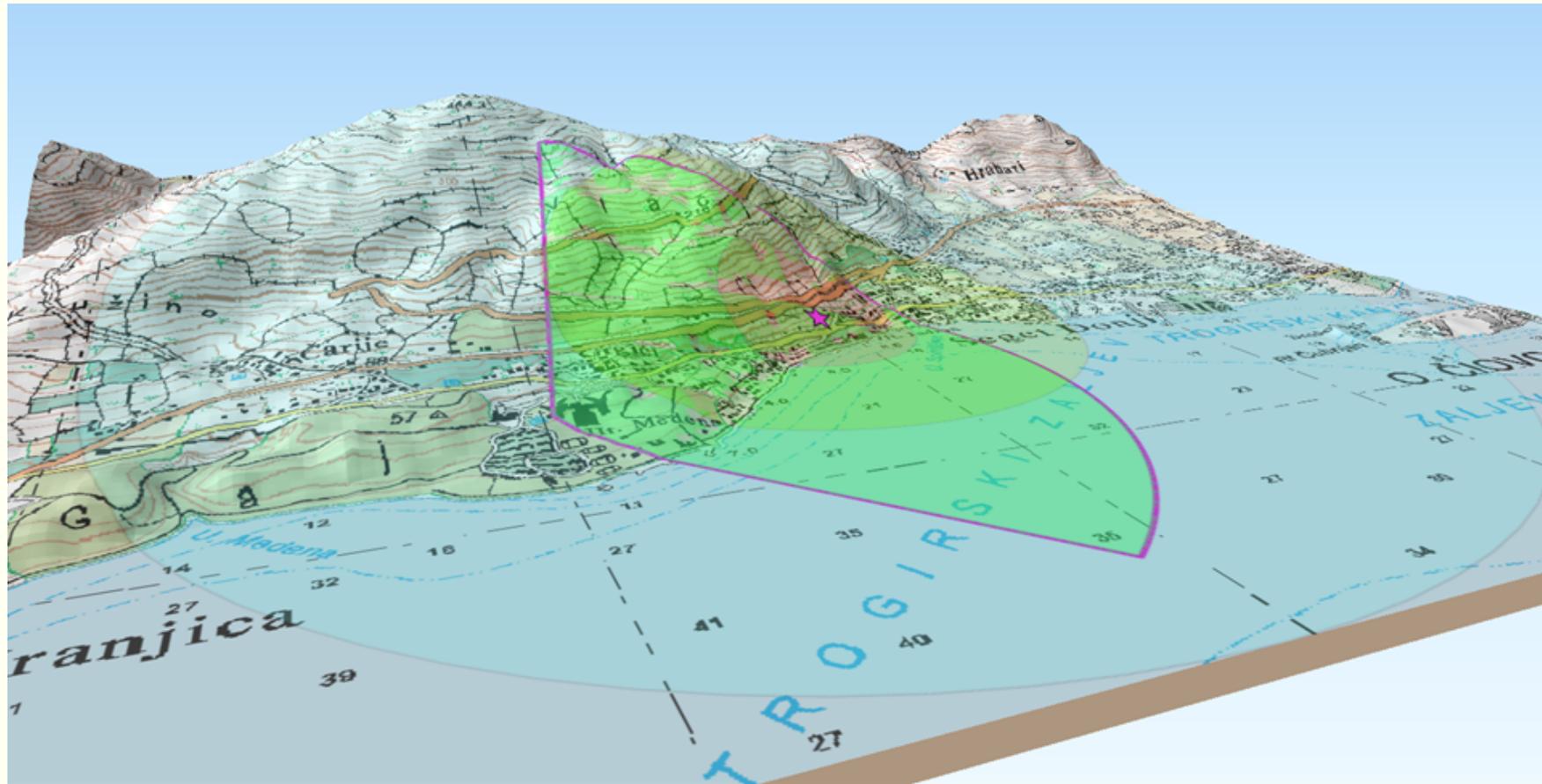
# Typical digital mapping – cell ID LBS



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# Typical digital mapping – cell ID in 3D



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# Ordinary technological support to SAR

Obviously on the top are man&dog SAR teams

- GIS technology and GPS trail tracking
- Reconnaissance by helicopters and light aircrafts
- Reconnaissance by drones
- IR night vision cameras
- Underwater echo sonars
- Cooperation with telco operators in Location Based Services (not well regulated by law - plenty of difficulties)



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