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**Collection and Use of Spatial Data
for the Determination of Areas
of Respect for the Tutelage
of Groundwater and Springs**

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

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**The sustainable use of water resources and springs
presents the necessity of correct actions in order to prevent
them from pollution and guarantee a good use of landscape,
also through the identification of protected areas.**




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Definition of safeguards areas and centers of danger

- We call Centers of danger all activities, settlements and artifacts, that could create a deterioration of the quality of water used for human activities.
- We define Charging areas the portion of ground surface that collect the infiltration of rain, snow dissolution and generates supply to the groundwater
- The protected zones (areas) are categorized in "absolute protection zone" and "buffer zone" and they serve the purpose of protecting and preserving the quality of surface and groundwater by imposing restrictions on proper land use and control over land management.
- The buffer zone is usually divided into narrow buffer zone (ZRR) and extended buffer zone (ZRA).



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Criteria used for the definition of the protected areas

- As indicated by current law, the definition of the protected areas of springs is based primarily on geometric criteria, particularly represented by a series of concentric circles. With the "point of collection" as center, the "absolute protection zones (ZTA)" are defined by the first 10 meters of radius, while the next 200 meters delimit the "buffer zones (ZR)."



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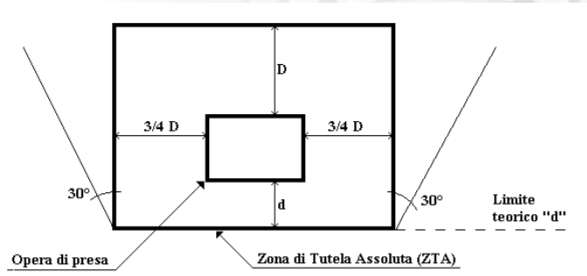




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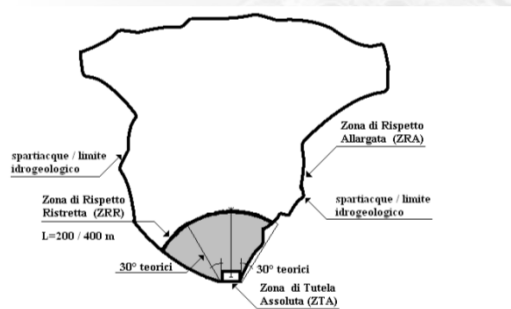
The absolute protection zone (ZTA) is formed by the nearest surrounding area of the catching basin and is normally rectangular shaped.



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The buffer zone consists of the portion of the area surrounding the absolute protection zone, and it is usually divided into narrow buffer zone (ZRR) and extended buffer zone (ZRA).

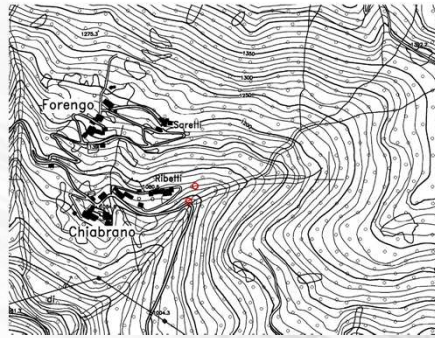
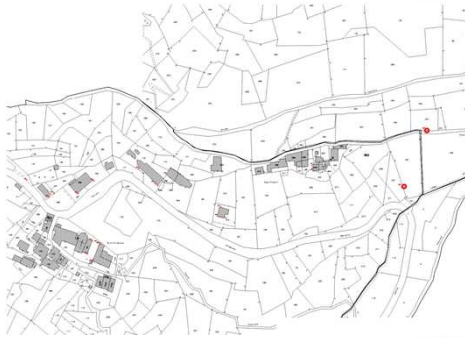




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GNSS Survey



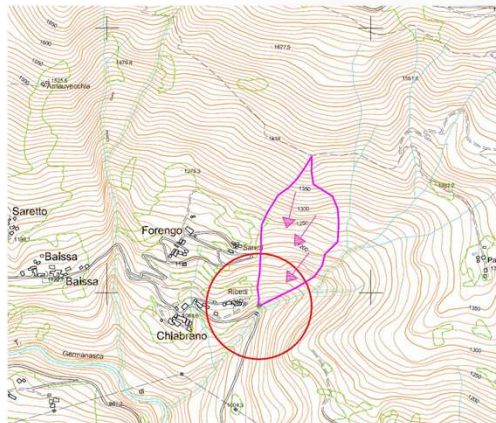
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Definition of the spring's recharge basin



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Identification and study through inspections, historical and geographical analyses of the different critical areas within the charging basin or in its vicinity.



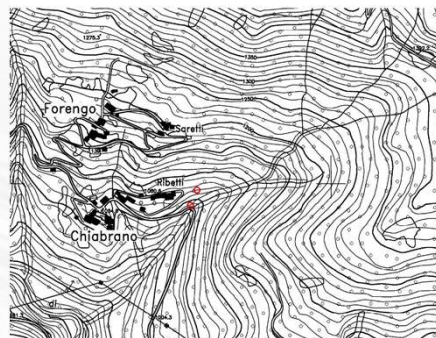
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Representation of springs



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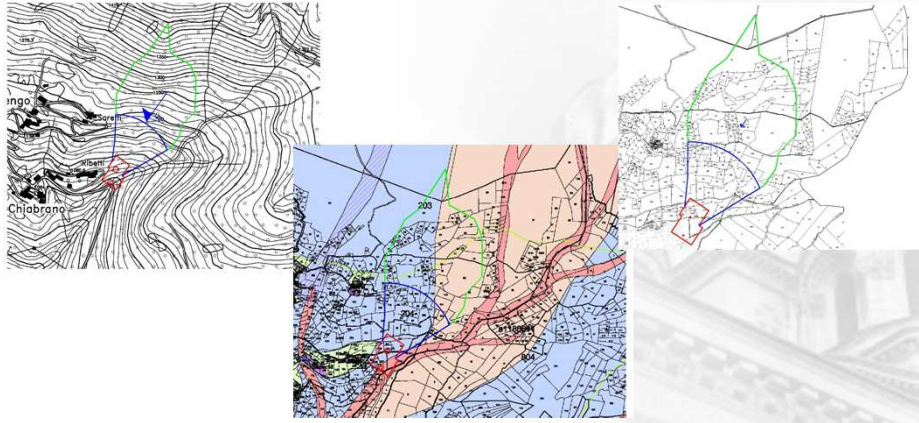




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Representation of the protected areas



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