

NETWORK DESIGN FOR WATER RESOURCES MONITORING. APPLICATION OF GEOGRAPHIC INFORMATION SYSTEMS.

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The use of a geographic information system is proposed as a tool to design observation networks for water resources. The studied area corresponds to the hydrological basin of the Gato creek (Arroyo El Gato). It is placed in a flatland area where two geological - geomorphologic units can be outlined. The interior plain has heights above sea level between 5 and 20 m where Pampeanos sediments prevail and the coastal plain located between sea level and 5 m height with Postpampeanos sediments of fluvial and marine origin. In this basin a few regions maintain natural conditions, there primary activities (agriculture and livestock farming) take place; the others are strongly modified by anthropic activities. In the firsts, the upper basin, the drainage pattern responds to a natural behavior but in the middle and lower basin urbanization and industry implantation are strongly modifying this behavior. Data for GIS came from geopositioned LANDSAT5 TM images, historical aerial photographs and maps and direct surveying. This data allowed to establish layers for geology, geomorphology, drainage system and land use; and also to analyze their temporal variations. These elements associated with human activity contaminants allowed the definition of risk areas. All this information has been integrated with specific hydrological data showing the utility of this tool to generate basis for the determination of sites where control can be done on superficial and groundwater, their evolution on time and contamination impact.