

**APA – Automatic Protection Areas.
RELEASE: 1.0**

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A detailed description of how the software works as well as examples of its application can be found in the following papers:

- TOSCO T; DI MOLFETTA A; SETHI R (2010), *Automatic delineation of capture zones for Pump & Treat systems: a case study in Piedmont, Italy*, *Ground Water Monitoring & Remediation*, 30(2), 46-52.
- TOSCO T; SETHI R. (2009), *Comparison between backward probability and particle tracking methods for the delineation of well head protection areas*, *Environmental Fluid Mechanics*, 10(1), 77-90
- TOSCO T.; SETHI R; A. DI MOLFETTA (2008), *An automatic, stagnation point based algorithm for Wellhead Protection Areas delineation*, *Water Resources Research*, 44(7)

1. General instructions

The APA software is developed in a Matlab environment, and is to be used coupled with Visual MODFLOW. Therefore, APA can be run only if both programs are installed on the user's computer.

When the code files have been extracted, run the MAIN_FILE.p script from the MATLAB Command Window. The code is provided in the encrypted form (.p files). As a consequence, the files can be run but not edited in Matlab.

When the MAIN_FILE is running, interactive instructions are provided in the Command Window. Briefly, before running the code, create your project in Visual MODFLOW and solve the flow saving the .FLO file. Then close the project and run APA from MATLAB.

When running, APA requires two MODPATH runs from Visual MODFLOW. After each run, it is suggested to close the Visual MODFLOW project, otherwise problems can arise when the Matlab code modifies the MODPATH input/output files.