

CONNECTIVITY TOOLBOX

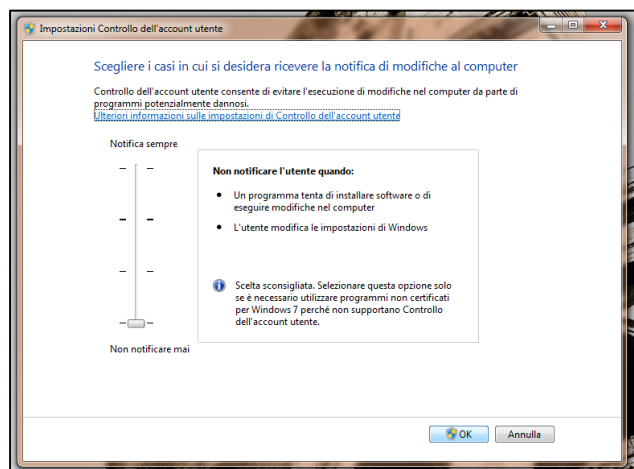
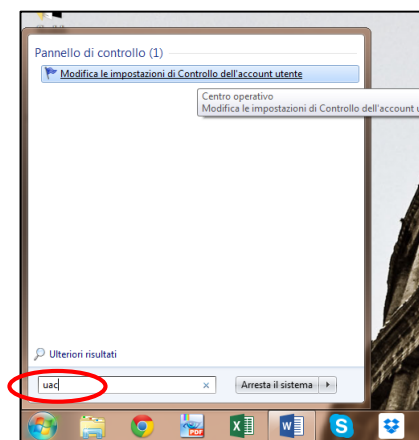
ArcGis 10.1 toolbox installation instructions for Windows 7-8, 32-64 bit

ToolBox for the Connectivity Index calculation as expressed in:

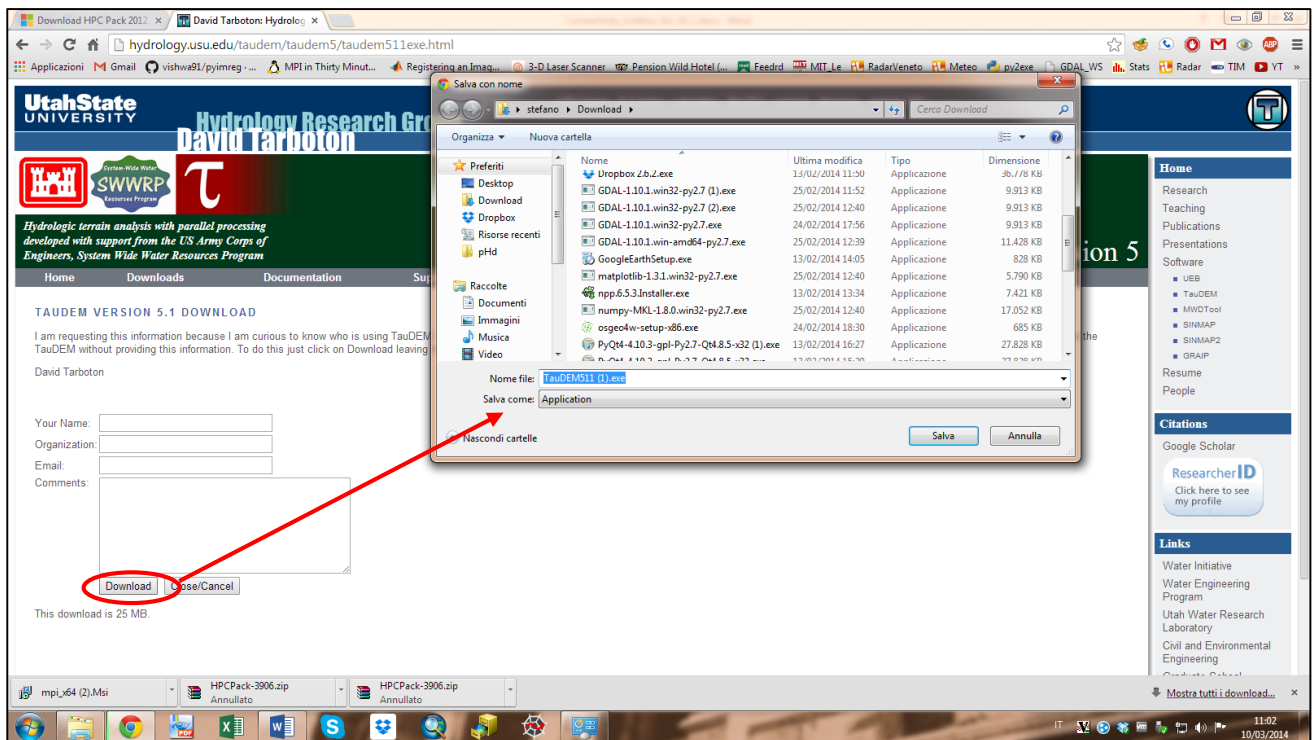
Marco Cavalli, Sebastiano Trevisani, Francesco Comiti, Lorenzo Marchi, Geomorphometric assessment of spatial sediment connectivity in small Alpine catchments, *Geomorphology*, Volume 188, 15 April 2013, Pages 31-41, ISSN 0169-555X,
<http://dx.doi.org/10.1016/j.geomorph.2012.05.007>.

INSTALL INSTRUCTIONS:

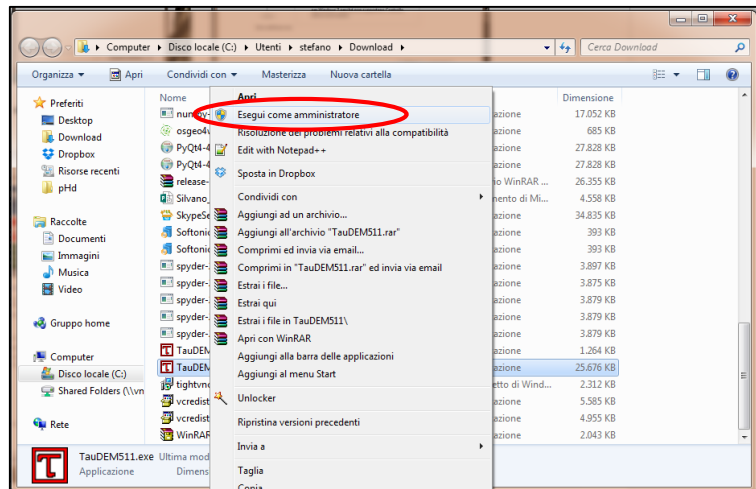
- Download and install HPC Pack 2012 MS-MPI from:
<http://www.microsoft.com/en-us/download/confirmation.aspx?id=36045>
selecting the appropriate installation (x86->32 bit, x64->64bit).
- Recommendation: turn UAC (User Account Control) to lower value to prevent windows from potential blocks of MPI activity. To do this just type “uac” in the start dialogue, turn the level low and confirm.



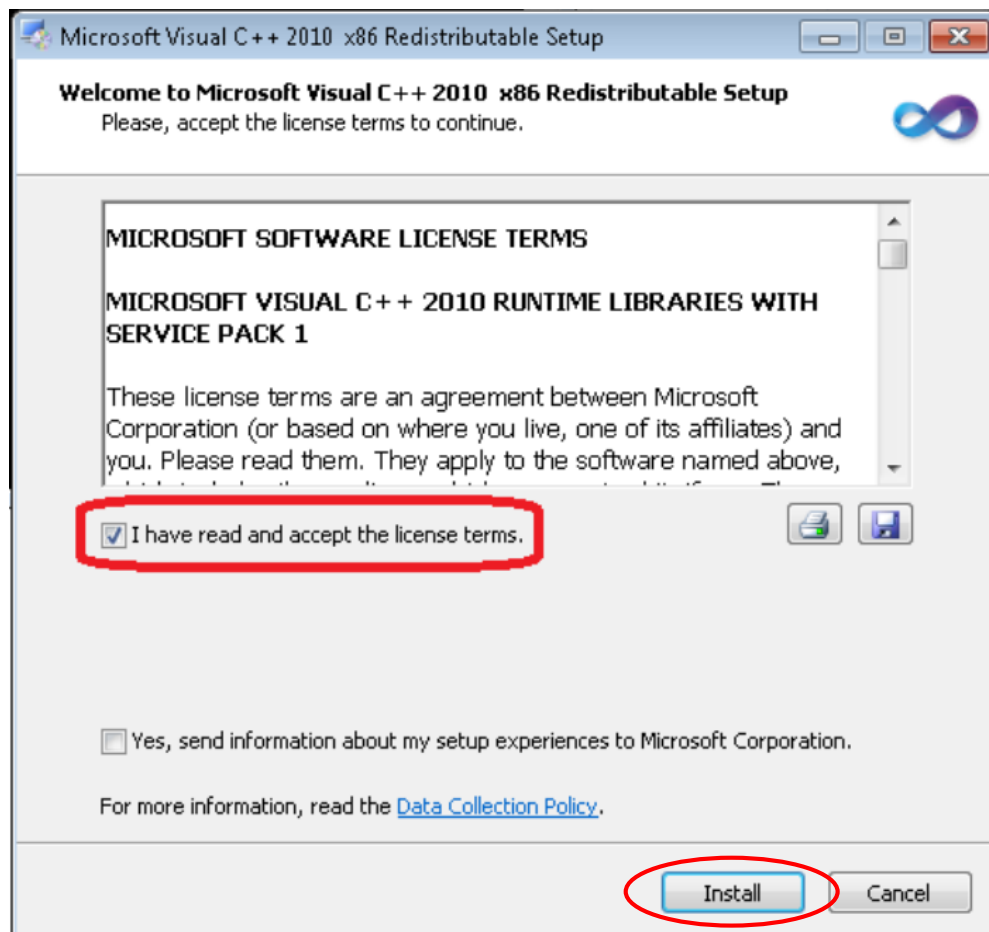
- Download and install TauDEM 5.1.1 (tested version) from:
<http://hydrology.usu.edu/taudem/taudem5/taudem511exe.html>



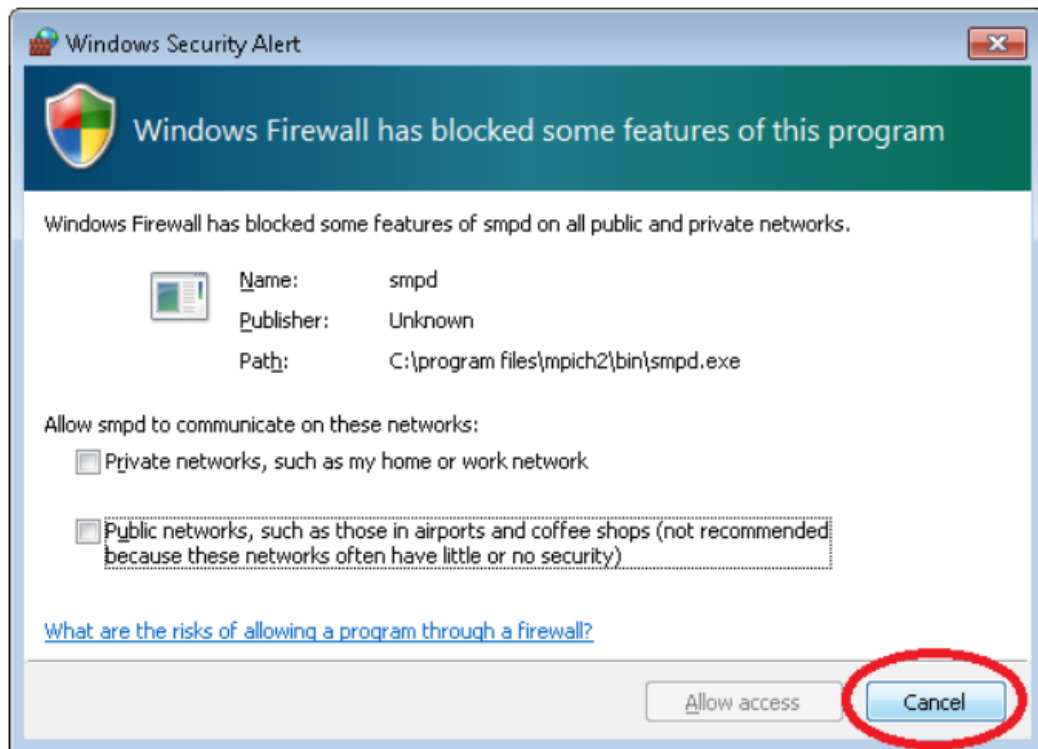
It is recommended to install TauDEM with administrative privileges, to do this right-click on the downloaded file and select **Run as administrator**.



- TauDEM installation requires **Microsoft visual C++ 2010** runtime libraries, it will auto-detect the eventual missing of this package and install it, just agree to the license terms and install the proposed Visual C++ 2010 and **then** install the TauDEM itself.



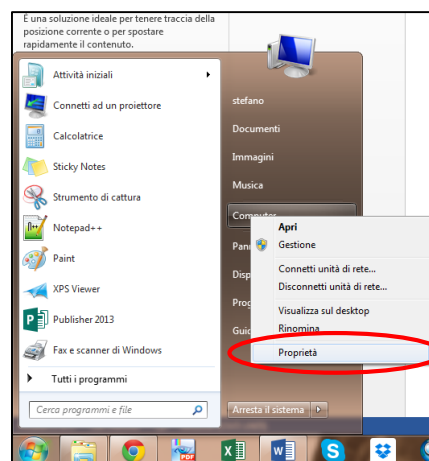
If at any time during the installations (MPI, Visual C++ or TauDEM) you receive a firewall message like the following:



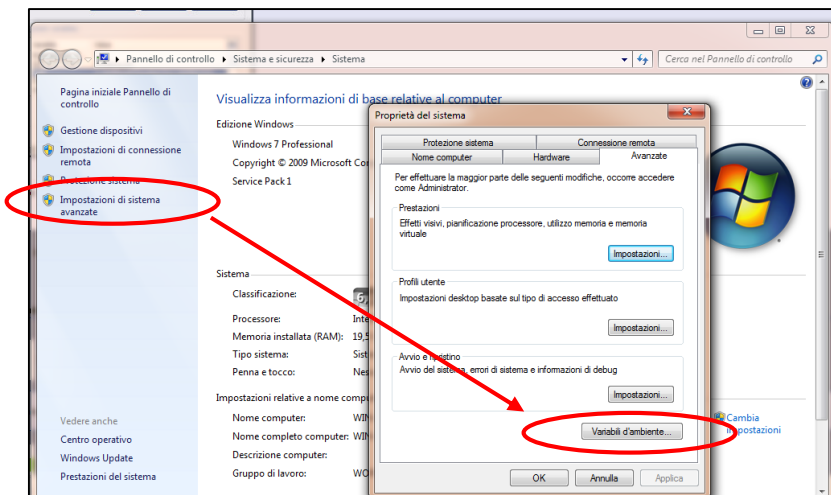
Click Cancel and continue because the utility does not need to communicate with external resources.

- **Optional:** Check for the presence of both *mpiexec* folder and TauDEM executables folder on your system path. **The new Taudem and HPC releases should add their installation path to the system by default, this way you can skip next step. In case you prefer to check, follow these instructions:**

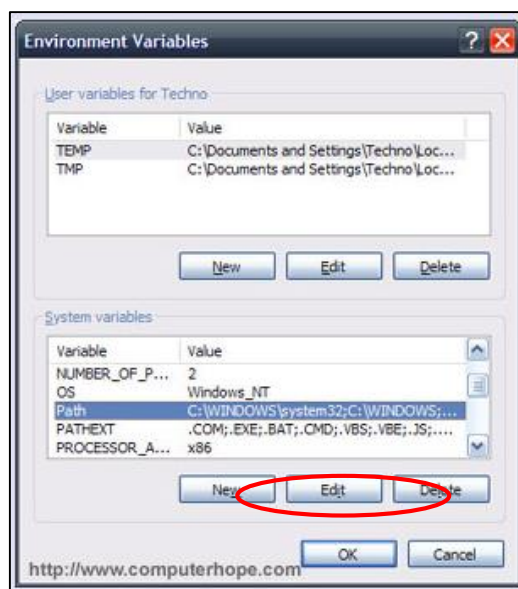
1- From the desktop, right-click My Computer and click Properties.



2- In the System Properties window, click on the Advanced tab.

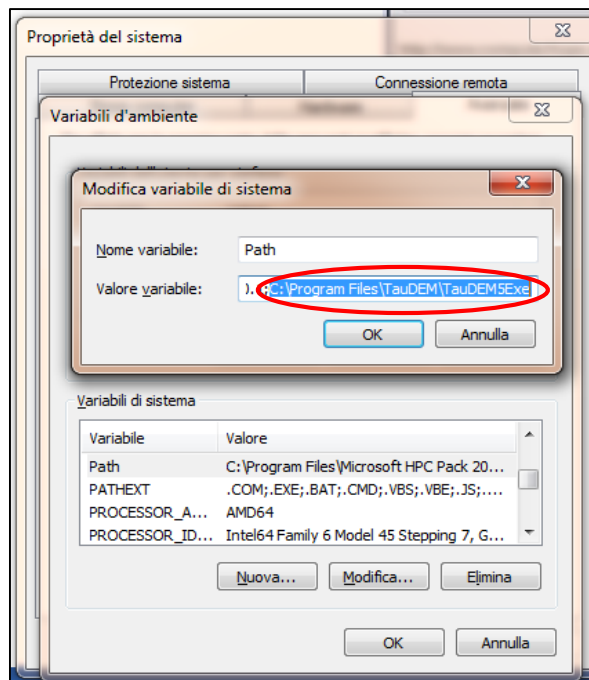


- 3- In the Advanced section, click the Environment Variables button.
- 4- Finally, in the **Environment Variables** window, highlight the **Path variable in the Systems Variable section** and click the Edit button.



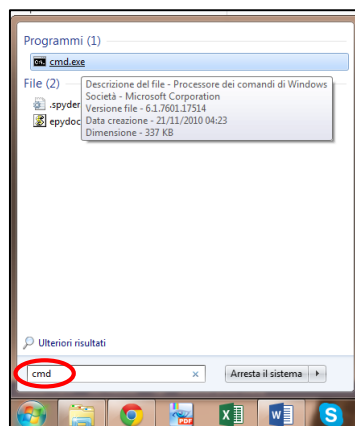
- 5- Add or modify the path lines with the paths you wish the computer to access. Each different directory is separated with a semicolon.
If not already present add the following folders **separated by a semicolon**

*C:\Program Files\Microsoft HPC Pack 2012\Bin\
C:\Program Files\TauDEM\TauDEM5Exe*



then ok and apply the changes.

- **Optional:** Check that your system recognizes HPC and TauDEM paths by doing the following:
Start->then type *cmd*



and press enter.

Type ***mpiexec*** and press enter, you should see something similar to the following:

```
Amministratore: C:\Windows\system32\cmd.exe
Microsoft Windows [Versione 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. Tutti i diritti riservati.

C:\Users\stefano>mpiexec
Launches an application on multiple hosts.

Usage:
    mpiexec [options] executable [args] [ : [options] exe [args] : ... ]
    mpiexec -configfile <file name>

Common options:
-n      <num_processes>
-env    <env_var_name> <env_var_value>
-wdir   <working_directory>
-hosts  n host1 [m1] host2 [m2] ... hostn [mn]
-cores  <num_cores_per_host>
-lines
-trace  [filter] [Deprecated. Please control MPI tracing with any Event Tracing
        for Windows (ETW) tool. E.g. XPERF, LOGMAN]
-tracemax <size_in_mb> [Deprecated.]
-debug  [0-3]

Examples:
    mpiexec -n 4 pi.exe
    mpiexec -hosts 1 server1 master : -n 8 worker

For a complete list of options, run mpiexec -help2
For a list of environment variables, run mpiexec -help3
```

This means that your system recognizes the mpi installation, then type **D8Flowdir** (or any other TauDEM command) and you should see something like this:

```
C:\Users\stefano>D8Flowdir
Error: To run this program, use either the Simple Usage option or
the Usage with Specific file names option
Simple Usage:
    D8Flowdir <basefilename>
Usage with specific file names:
    D8Flowdir -fel <demfile>
-sd8 <slopefile> -p <angfile> [-sfdr <flowfile>]
<basefilename> is the name of the raw digital elevation model
<demfile> is the pit filled or carved DEM input file.
<slopefile> is the slope output file.
<pointfile> is the output d8 flow direction file.
[-sfdr <flowfile>] is the optional user imposed stream flow direction file.
The following are appended to the file names
before the files are opened:
fel    carved or pit filled input elevation file
sd8    D8 slope file <output>
p      D8 flow direction output file

C:\Users\stefano>
```

This means that your TauDEM installation is working.

- Now Download the Connectivity Toolbox from the SedAlp Groupware utility (for ArcGis 10.1):

https://secure.regione.piemonte.it/auth_sedalp/login.php

www.sedalp.eu/groupware/appl/gestdoc/alberoFO.php?nodo=115

Applicazioni Gmail vishwa91/pyimreg MPI in Thirty Minut... Registering an Imag... 3-D Laser Scanner

SEDALP **Groupware**

HOME USER: Marco Cavalli - ROLE: Manager

March 2014						
mo	tu	we	th	fr	sa	su
					01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

DOCUMENT MANAGEMENT

- Unread documents
- Search for documents
- Display all documents
- Document management
- Document group management
- Document sub-group management

USERS MANAGEMENT

- Modify my password
- Users management

ADDRESS BOOK

- Show address book
- Modify my profile

EVENTS

- Event management
- Show events of the month
- Insert events

FORUM

- Discussion management
- Insert discussion

Display all documents

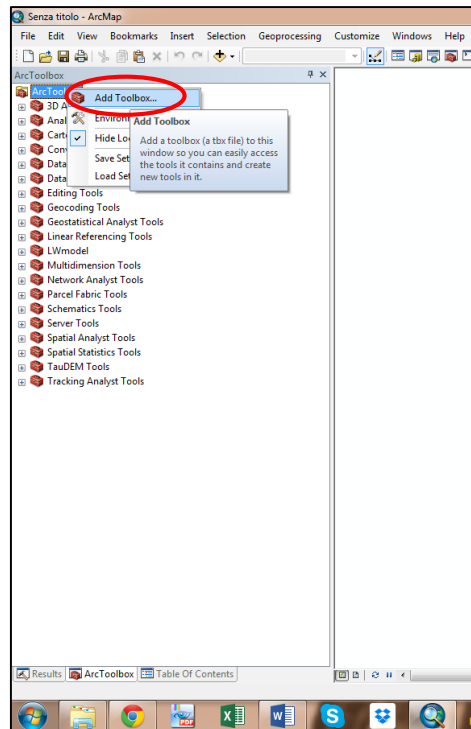
- SedAlp Project
 - SedAlp Advisory Board Meetings
 - WP2 SedAlp project management
 - WP3 Information and Publicity (SedAlp Project Communication)
 - WP4 Basin-scale sediment dynamics
 - Connectivity ToolBox for ArcGis 10.1** Available: 1 To
 - WP5 Sediment transport monitoring
 - WP6 Interactions with structures
 - WP7 Sediment management
 - WP8 Synthesis and capitalisation

Title: Connectivity ToolBox for ArcGis 10.1 [Read]

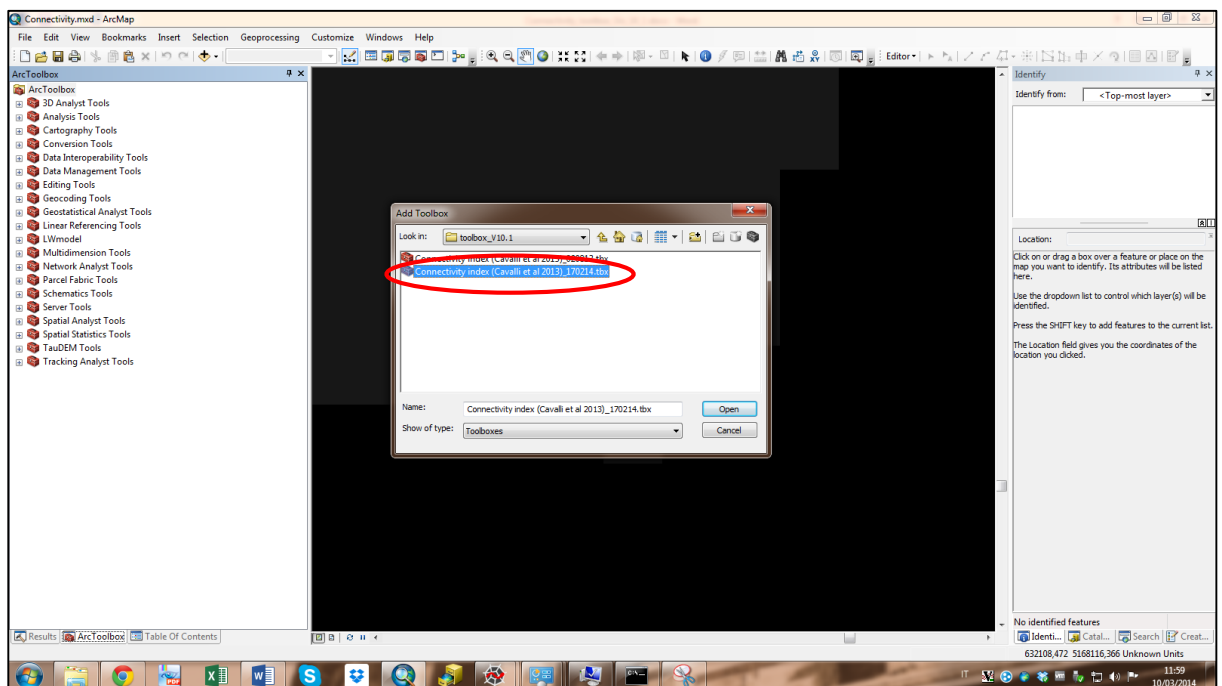
Description: Connectivity index computation as expressed in: Marco C Alpine catchments, Geomorphology, Volume 188, 15 April 2013, Pages 3

and save it to a permanent folder.

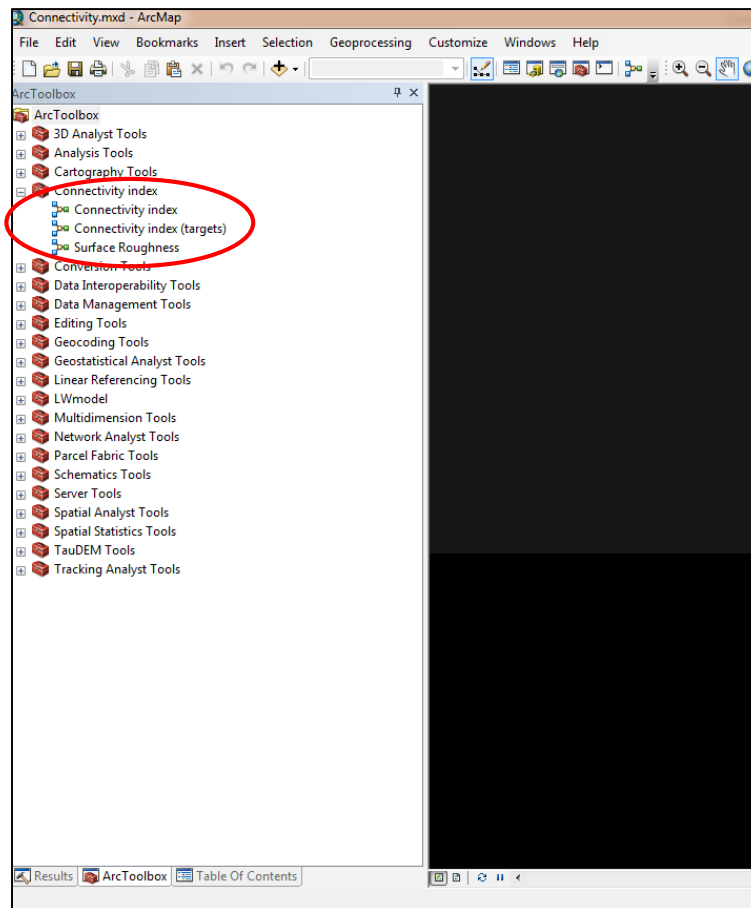
- Open ArcMap 10.1, in the toolboxes section right-click on ArcToolbox top folder and select Add toolbox.



Browse to your downloaded Connectivity Toolbox and add it.

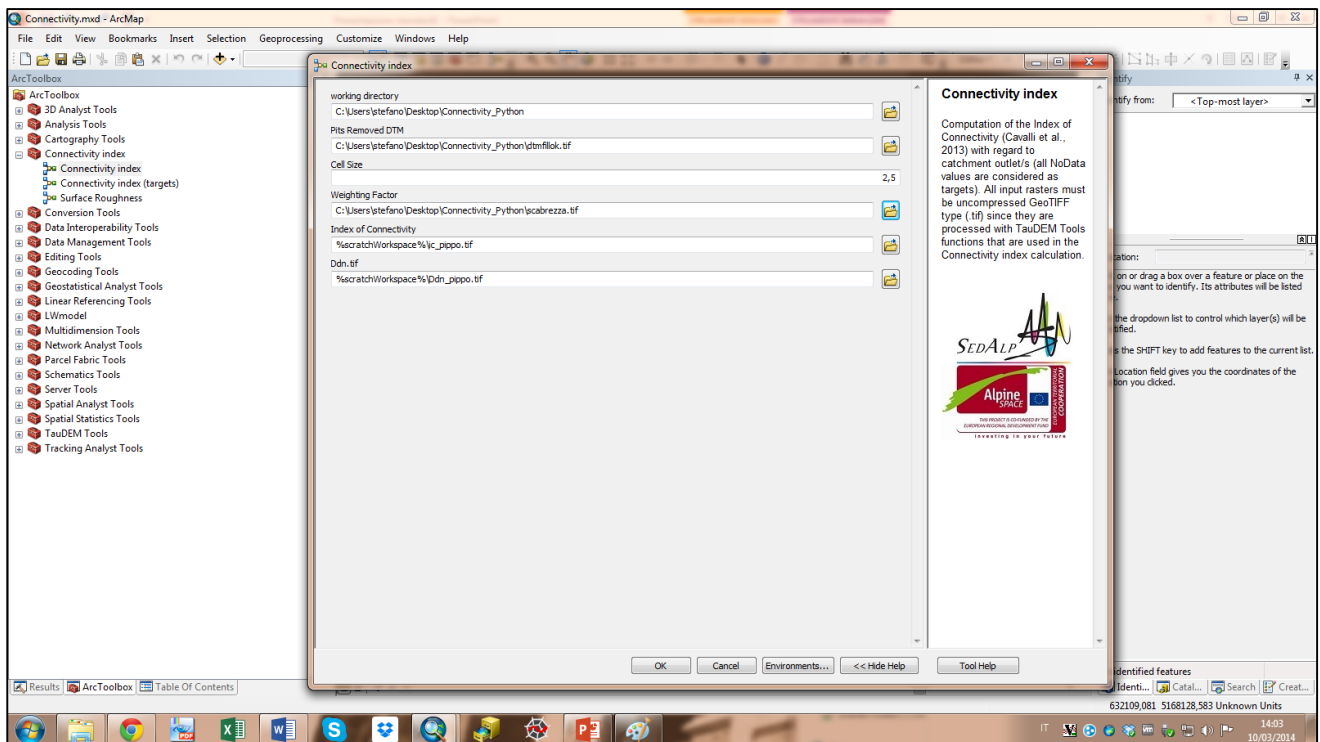


After this you should have the Connectivity toolbox loaded into your project, if you open it you should see three available tools (the eventual presence of a red cross on a tool means that it is not working, usually because some paths to the linked files are not properly set or read).



If you want to save this configuration and have the Connectivity toolbox by default present in your ArcMap projects right-click on the ArcToolbox top folder and select *Save settings* and then *To default*.

The tools are ready to be used, follow the help on the single tools for detailed information on input and output files.



Enjoy your Connectivity Experience!

- For **more information** on TauDEM installation, see also the following:
<http://hydrology.usu.edu/taudem/taudem5/TauDEM51GettingStartedGuide.pdf>
 and/or:
<http://hydrology.usu.edu/taudem/taudem5/TauDEM51CommandLineGuide.pdf>
- For **troubleshooting on TauDEM** installation/working check also:
<http://hydrology.usu.edu/taudem/taudem5/support.html>
 and:
<http://hydrology.usu.edu/taudem/taudem5/troubleshooting.html>
- For **troubleshooting on the Connectivity ToolBox** usage write to:
marco.cavalli@irpi.cnr.it
 or:
stefano.crema@irpi.cnr.it