

Mid-Term Report status

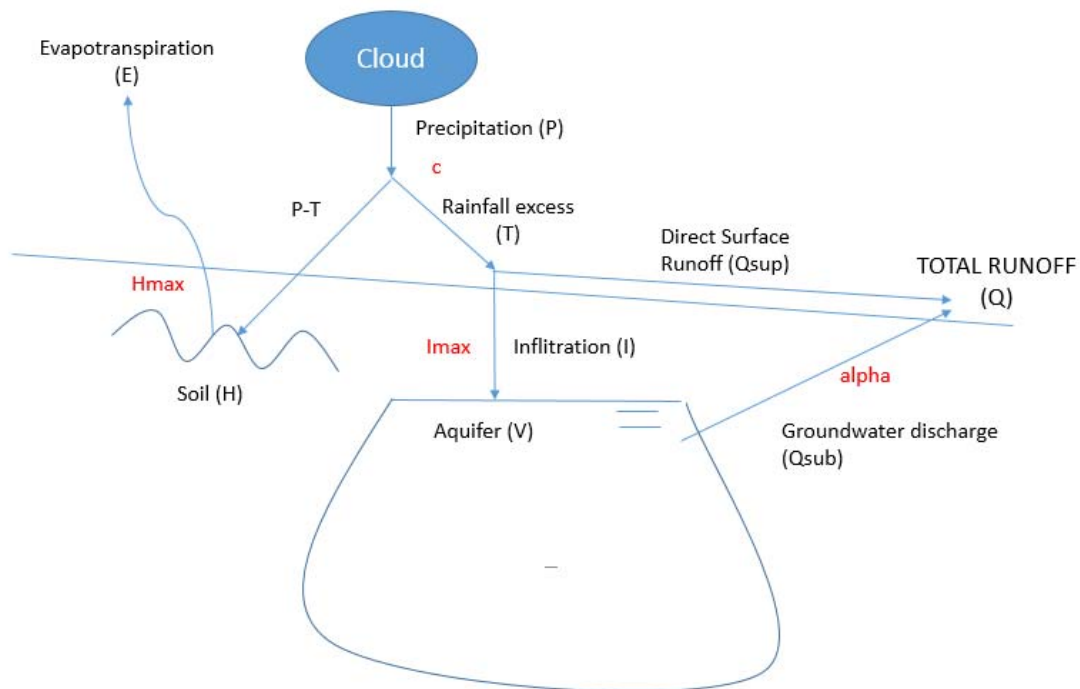
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Temez's model needs the time series in a monthly basis of the following input data for the last 20 years (arbitrary, it can be 25 or 30 also):

- Precipitation
- Evapotranspiration
- Streamflows

It also requires a first estimation of alpha (parameter of groundwater discharge), c (excess coefficient), I_{max} (parameter of max infiltration), H_{max} (maximum soil moisture capacity) and H₀ (initial soil moisture).

The model follows this sketch:



So, with the data I have specified above and building an Excel file with Temez's formulation we can obtain the Total Runoff in the watershed. My intention is to use 20 years of the data to build the model of the watershed (Calibration) and 5 years to see the goodness of the model (Validation).

I want to do this operation in two watersheds, one in USA and another one in Spain, and provide an equivalence between the GIS databases in both countries.

My first intention is to work with a watershed in the Jucar River Basin in Spain (find the map below divided into watersheds and subwatersheds), I have been researching the different databases and still have not find all the data needed. I am going to email this week a Water Resources professor in my home university in Spain to see if he can help me. Some links I found for this basin are:

Map data:

<http://www.chj.es/es-es/medioambiente/sistemasdeinformacion/Paginas/ListaCartograficos.aspx>

Flow data:

<http://sig.magrama.es/aforos/visor.html>

Precipitation data:

<http://www.magrama.gob.es/es/estadistica/temas/estadisticas-ambientales/aguas.aspx>

Evapotranspiration annual data:

http://servicios2.marm.es/sia/indicadores/ind/ficha.jsp?cod_indicador=03&factor=det



For the basin in the US I will probably use San Marcos basin as it is a case that we have studied in class. I have not yet researched the databases to obtain the time series for one of this watershed, but data here in the US can be found easier than in Spain due to the more allocated resources in this matter.