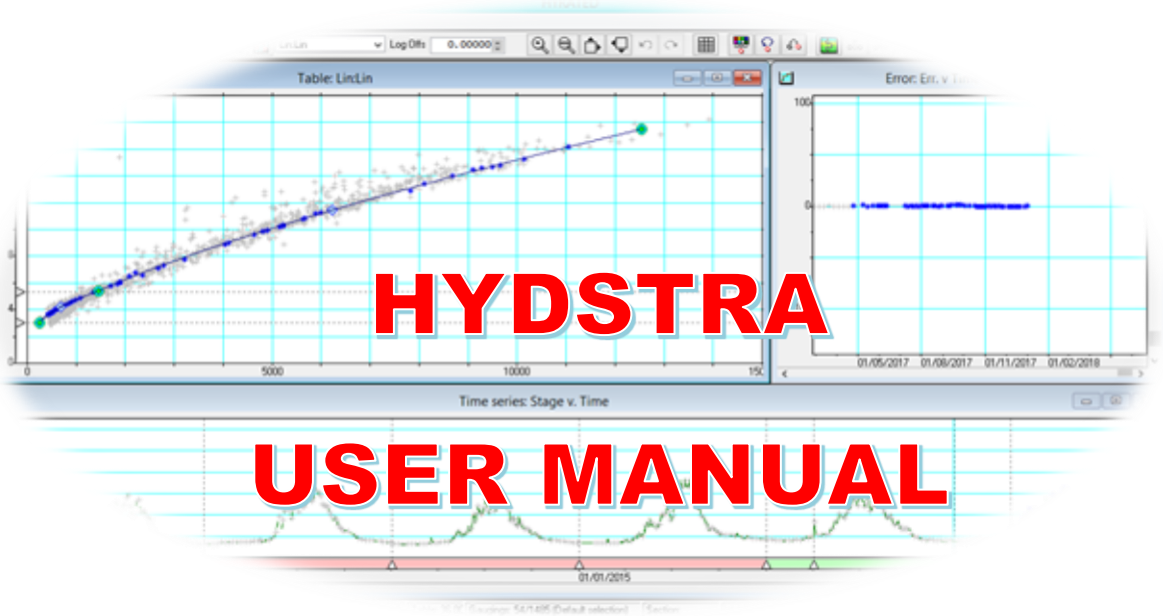
PAKISTAN

WATER AND DEVELOPMENT AUTHORITY

DFAT-CSIRO Indus Sustainable Development Investment Portfolio (SDIP)-Australia



FOR ANALYSIS OF DISCHARGE DATA

SWHP-WAPDA

January 2018

CSIRO

Australian Aid

KISTERS

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262	Discharge in cusecs

1. Introduction

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) and, its subcontractor, KISTERS, of Australia have been supporting SWHP-WAPDA through the capacity building of the staff in the implementation of the HYDSTRA software since 2016 to improve time series hydrological data processing and management.

The CSIRO of Australia, is helping Pakistan to build modern water management and assessment tools for the Indus Basin (https://research.csiro.au/sdip/projects/indus/) under Sustainable Development Investment Portfolio (SDIP) of Australian Government. This work was undertaken in the context of a Subsidiary Arrangement (established in 2016) and a Memorandum of Understanding (established in 2018) between the Government of Australia and the Government of Pakistan (http://mowr.gov.pk/index.php/press-release/).

Because the software has capability to process, archive and distribution of flow, climate, water quality and groundwater data sets (http://kisters.com.au/hydstra.html). Therefore, Software was modified to analyse and reporting the discharge and climate data according to the requirement of SWHP WAPDA. Discharges computed were also compared with the DBHYDRO (the software already being used in SWHP-WAPDA). The results of the HYDSTRA were more reliable than the DBHYDRO as presented in the meeting held at WAPDA House on November 30, 2018.

Because the software has capability to process the climate and ground water data. Therefore, the WAPDA staff from GMRC and IWASRI involved in the trainings/ workshops on Hydstra to process their data. Mr. M. Majid Sarwar Wattoo, S.E., Mr. Mirza Shoaib, SRO, Mr. Muhammad Afzal, J.E form SWHP extensively used the software during the contract period. Moreover, Mr. Kabir Nawaz, J.E and Mr. Haziq from (H&R) Engineers from Hydrology and Research Directorate (H&R) and Mian Waqar Ali Shah, J.E from GMRC also got trainings to analyse the discharge data.

Owing to its compatibility with latest machines, friendly user interface, handling of multiple data sets, availability of multiple options for printing and exporting data, HYDSTRA is ideal to implement in WAPDA to support the vision of Pakistan National Water Policy for Centralized data management.

The purpose of manual is provided the users to sufficient details about the procedures to carry out discharge data processing using HYDSTRA.

2. Discharge Measurement and Gauge data collection

For time series calculations of discharge, discharge measurements and the hourly or daily observed gauge height for gauging station is required. SWHP field team carry out the discharge measurements on weekly basis, at most of the sites, using the current meter and observe the gauge heights on hourly basis. Gauge heights data is collected on daily basis for eight hours and 24 hours depending upon the staff at the site.

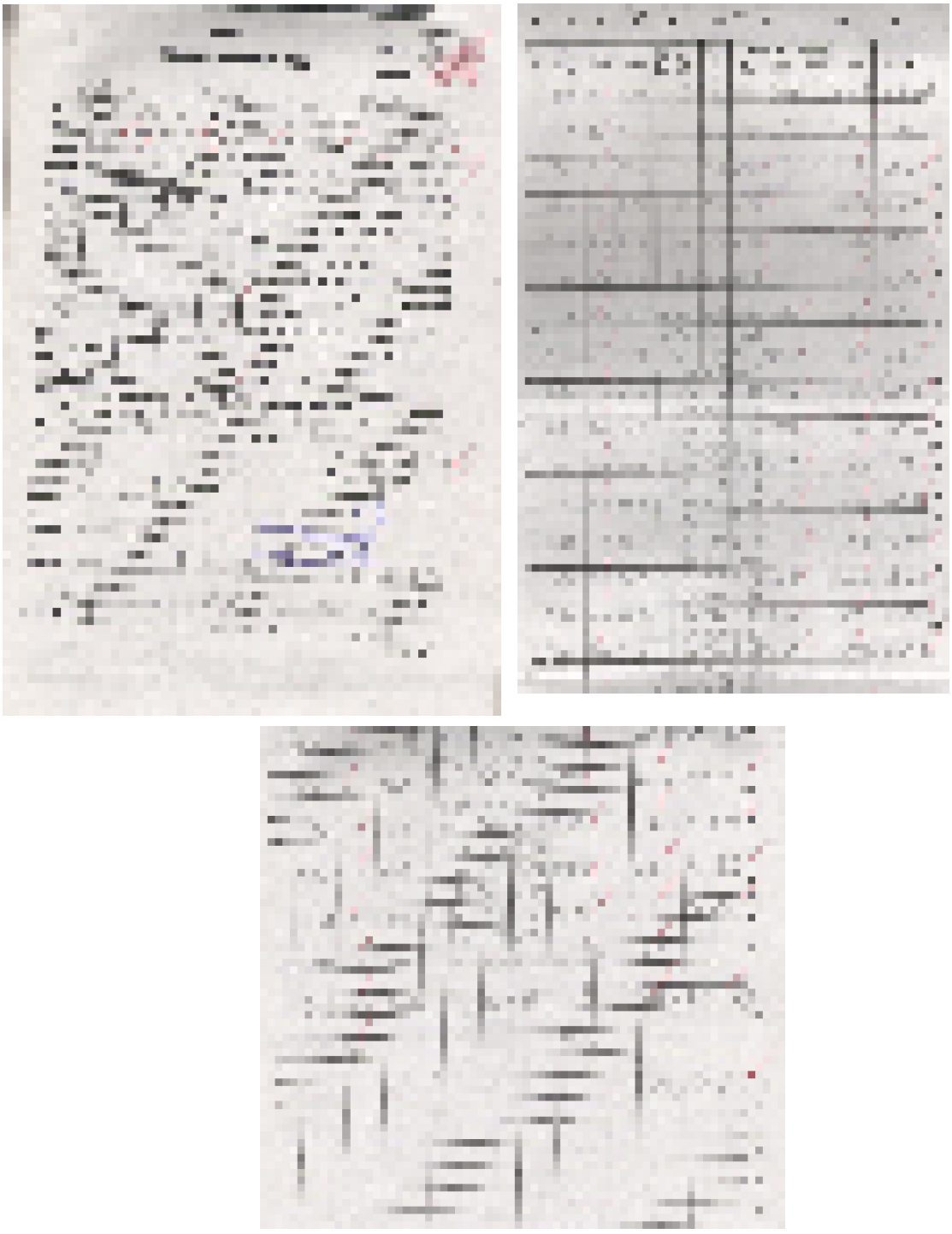


Figure 1: Sample discharge measurement proforma

2.1. Discharge measurement and gauge data collection Procedure

Mean section method is used to calculate the discharge measurement. Figure 1 shows the sample proforma that is filled by the hydrographer during discharge measurement at site.

Gauge is observed on half hourly basis during discharge measurement and averaged at the end of discharge measurements that sometime differs from the average of the hourly gauge observations.

2.2. General mistakes in data measurement/observation and entry

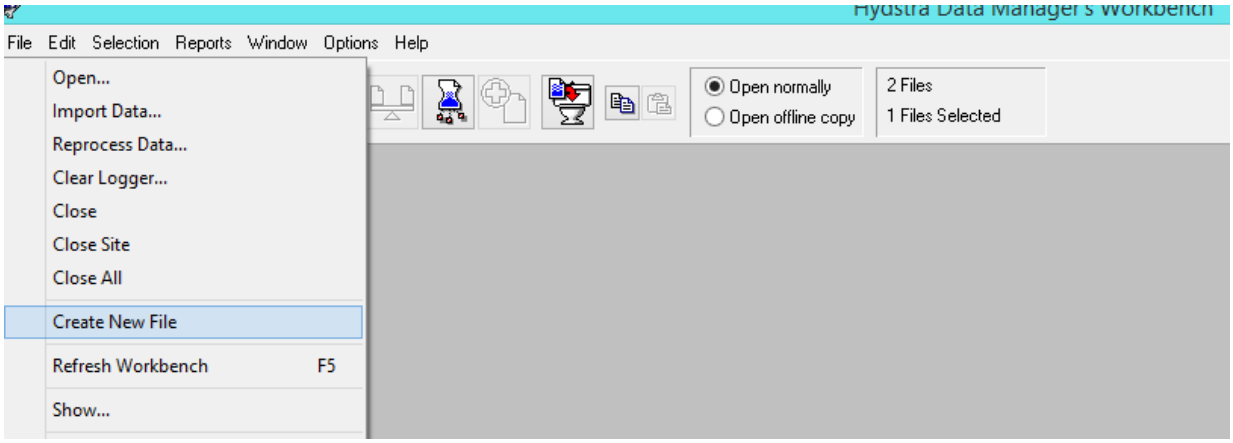
a) Gauge is observed on half hourly basis during discharge measurement and sometimes average gauge height is calculated incorrectly.
b) Gauges in decimal places are sometimes not recorded accurately e.g., see the record of Kaghan/ Naran 2016.
c) Sometime discharge is not collected correctly in the field or calculated the proforma.
d) Discharge measurement data contains typing mistakes that needs to be corrected before developing rating curve.
e) Wrong gauges may be entered in the proforma and the digital record as well.

Errors in gauge height and discharge measurement can be assessed after importing the data into HYDSTRA using the newly imported time series file and hyrated option, respectively. Detail of the time series data and development of rating is given in the subsequent sections.

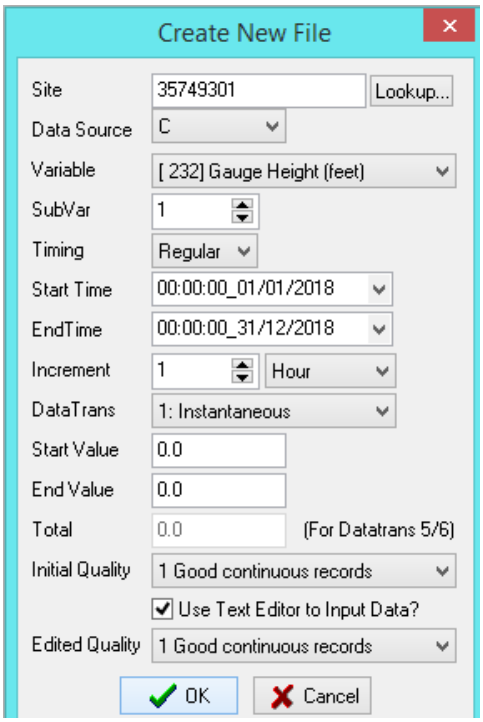
3. Importing Discharge and gauge data into HYDSTRA

The gauge and discharge data can be directly entered in hydstra by creating new time series file using workbench.

- Select ***file/ Create New File***



- Select the Site, data source and other required parameters



- Click Ok. A window will open where gauge height can be entered.
- After entering the data work file can be saved.

However, Hydstra is not available for all the staff, therefore, an excel format is available to enter both gauge and discharge data in it. Therefore, following methodology is helpful to calculate discharges accurately.

3.1. Excel Template for entry of Gauge and Discharge data

Although there is option to add the gauge data entry directly in Hydstra and import the data downloaded from data logger. However, the available template can be used to enter the data manually in it and then import the file into hydstra.

- Double Click on the file available at following path to open the template *Company Favourites/ By Function/ Importing/ Excel Templates/ Gauge Height and Discharge Template*

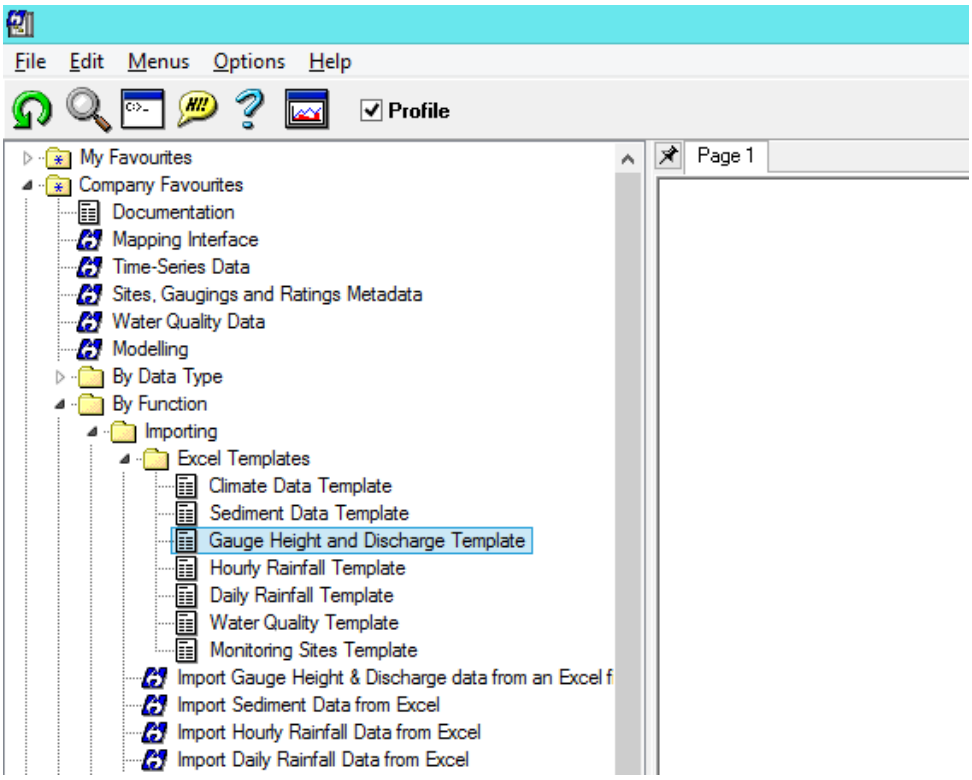


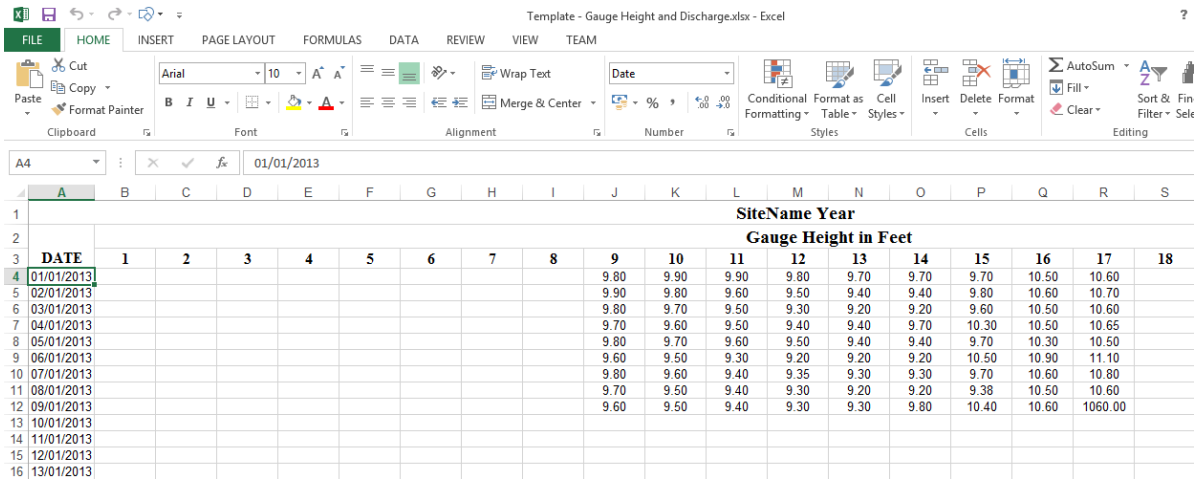
Figure 2: Gauge Height and discharge template

The data entry templates are also available at following location:

C:\hydstra\prod\HYD\dat\ptmp\Data Entry Templates

Template contains two sheets; one for entry of gauge height in feet and other for discharge data (in cusecs) measured at gauge location. Enter the data and complete the other details e.g, site name and year etc. Note that the date format should be in dd/mm/yyyy as shown in figure 3.

Note: Data entry sheets can be placed in a folder for particular year to be saved as a backup e.g., E:\Gauge Height and Discharge measurement SWHP\2018\Besham Qila.xls.



Template - Gauge Height and Discharge.xlsx - Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	SiteName Year																		
2	Gauge Height in Feet																		
3	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4	01/01/2013									9.80	9.90	9.90	9.80	9.70	9.70	9.70	10.50	10.60	
5	02/01/2013									9.90	9.80	9.60	9.50	9.40	9.40	9.80	10.60	10.70	
6	03/01/2013									9.80	9.70	9.50	9.30	9.20	9.20	9.60	10.50	10.60	
7	04/01/2013									9.70	9.60	9.50	9.40	9.40	9.70	10.30	10.50	10.65	
8	05/01/2013									9.80	9.70	9.60	9.50	9.40	9.40	9.70	10.30	10.50	
9	06/01/2013									9.60	9.50	9.30	9.20	9.20	9.20	10.50	10.90	11.10	
10	07/01/2013									9.80	9.60	9.40	9.35	9.30	9.30	9.70	10.60	10.80	
11	08/01/2013									9.70	9.50	9.40	9.30	9.20	9.20	9.38	10.50	10.60	
12	09/01/2013									9.60	9.50	9.40	9.30	9.30	9.80	10.40	10.60	1060.00	
13	10/01/2013																		
14	11/01/2013																		
15	12/01/2013																		
16	13/01/2013																		

Figure 3: Template for gauge height

Note: Gauge height can be imported in meters centimeters or inches by replacing the text 'Feet' or 'Ft' to 'meter' or m', centimeters or 'CM' and 'cusecs' to 'cumecs'. Following scripts for import of data is available at E:\hydstra\prod\HYD\dat\ini

- wap.import.ini
- wap.import.heightdischarge.xls.hsc

3.2. Import gauge height and discharge data

- Run the ***import gauge height & discharge data from Excel file*** in HYEXPLORER at the following path:

  Company Favourites/ By Function/ Importing

- Enter the following details in the window that opens as shown in figure 4.
  - Site ID,
  - Data source and
  - Path of file name (Excel file of Gauge height and discharge of the required station) to be import into hydstra

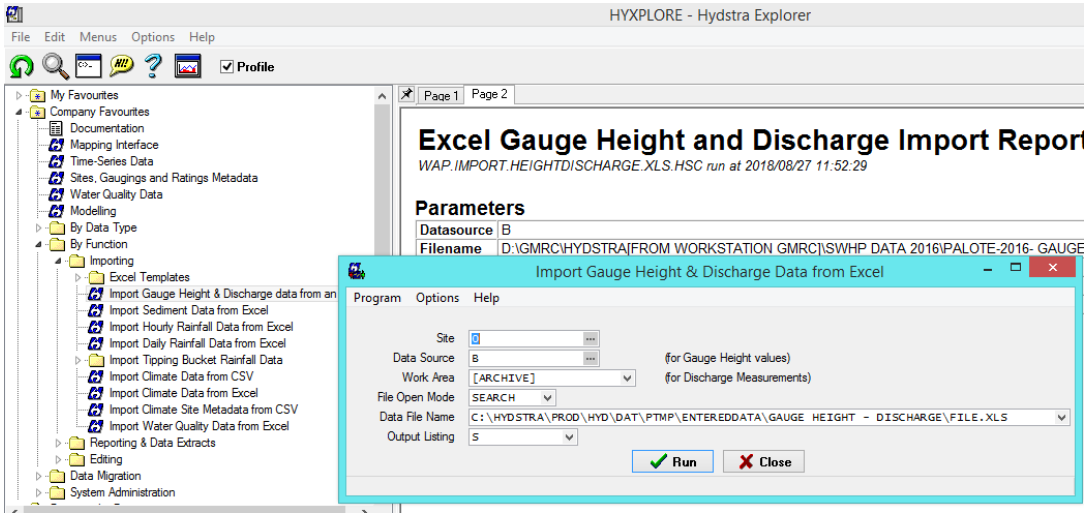


Figure 4: Window for import of Gauge height and Discharge data in excel format

- Data will be imported in work file e.g., A, B or C etc. if the data source for file is already existed then the new file will be given the next alphabet.

3.3. Correction of gauge height data

After importing the data, Open the newly created work file using workbench.

- Click the ***time series*** option in Hydstra.
- Select ***File/ Open*** or click on icon Open a file and enter the code of the site

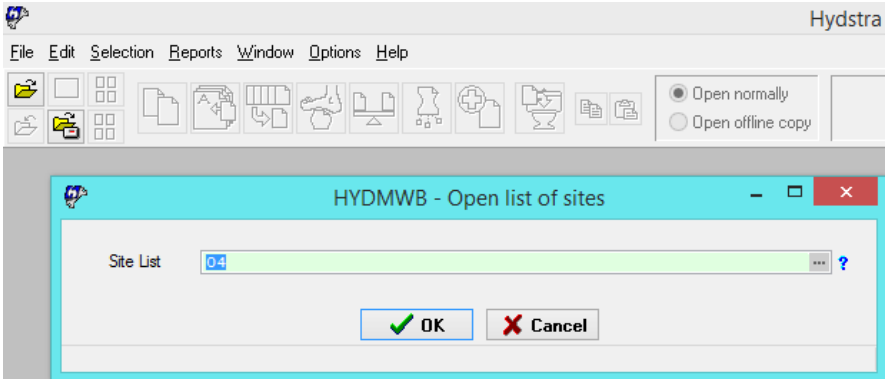
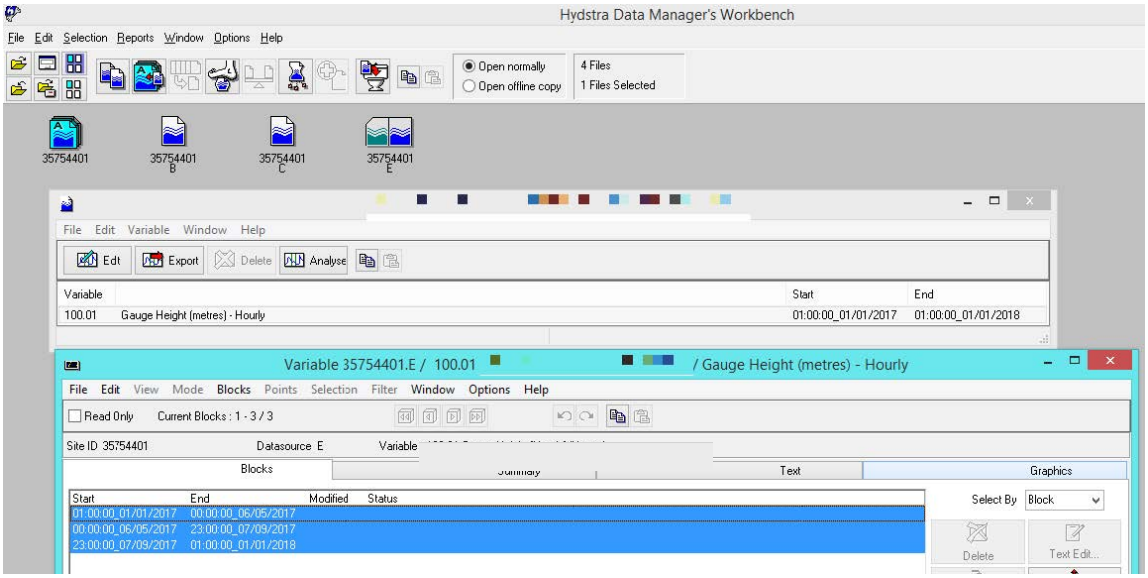


Figure 5: Open site in Work Bench

- ***Open*** the required work file. ***Double click*** on Gauge Height…
- A gauge height window will open. ***Select all blocks the blocks*** and ***click on Graphics tab*** where representation of data can be seen.



- A graphical view of the data will open where errors can be identified easily. ***Zoom in*** the portion of data and see the date and hour of incorrect data entry.

- Correct all the data in excel and import it again.

4. Rating Curve in Hydstra

Hyrated function is executed to develop rating curve in hydstra. Following are the steps to develop rating curve:

4.1. Developing Rating curve

a) ***Run hyrated*** and add the required details i.e., Site ID and the required data base in the rating details, other details should be as follows:

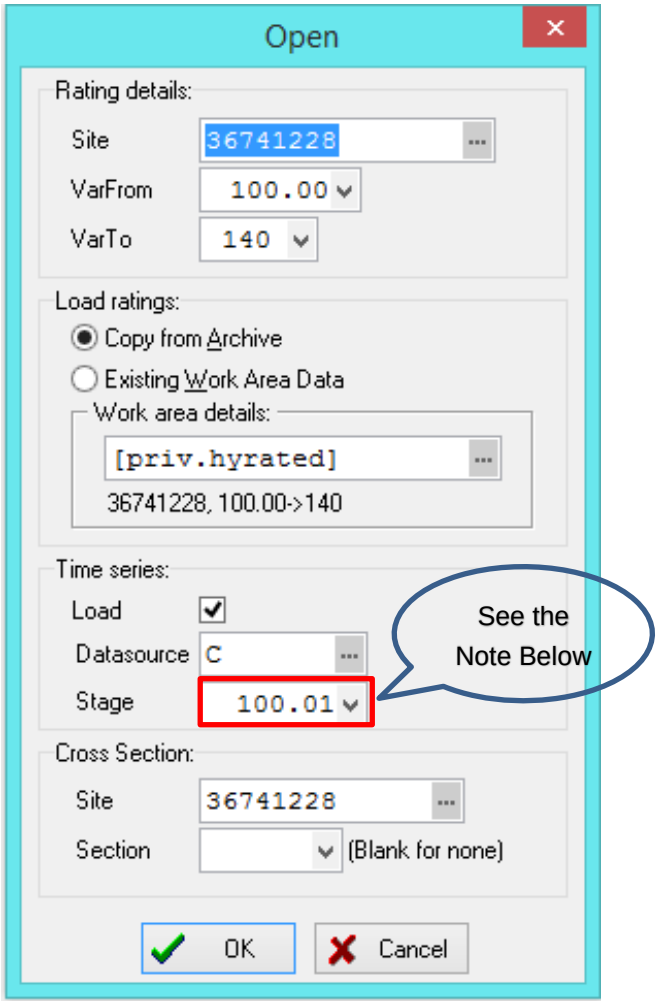


Figure 6: selection of site and data base

Note:

100.01 in time series allows to see the daily gauge data in time series window as indicated by arrow in figure 8. Rating curve line should be straight in log-log graph, cumulative error vs time should be near to zero as shown above.

b) Window for developing rating curve will be open then ***Add table*** by right click on the HYRATED window

c) Add the required data in the window i.e., Rating table stage bottom, Cease to Flow (CTF) and Rating Table stage top and check the option 'equations' and then click ***OK*** button.

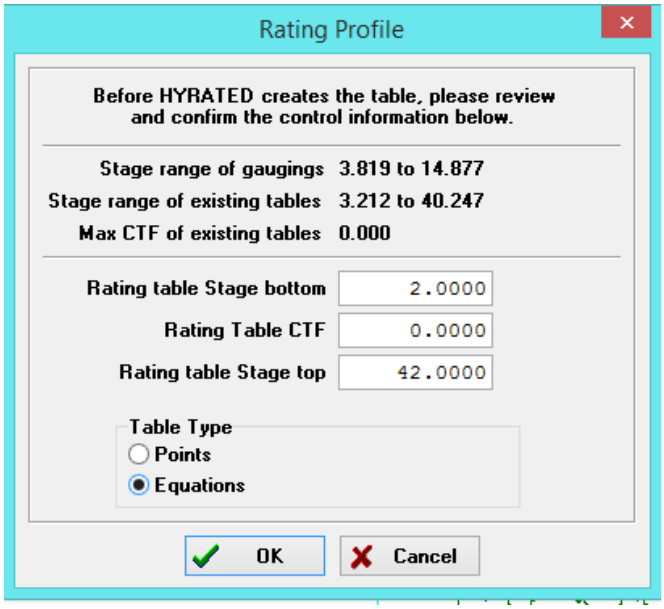


Figure 7: Rating Profile

Note: CTF is the gauge height where flow ceases and gauges below this height will compute zero discharges. Therefore, for hill torrents (Non-perennial streams) this helps to compute the discharges accurately.

d) Add the required information in the window '**table details'** as shown in figure 8.

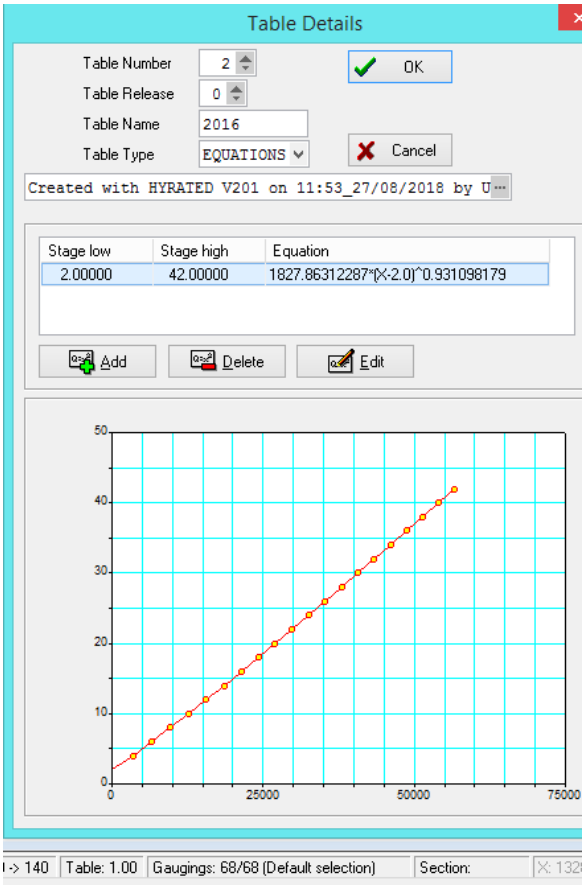


Figure 8: Window for Table details

e) Right click on the HYRATED window and add the period using ***Add button***

f) Entered the date and time in the ***period Start tab*** and then select the table from ***Table list*** tab. (***Period should not be started from the date of measurement otherwise shift will not be computed).***

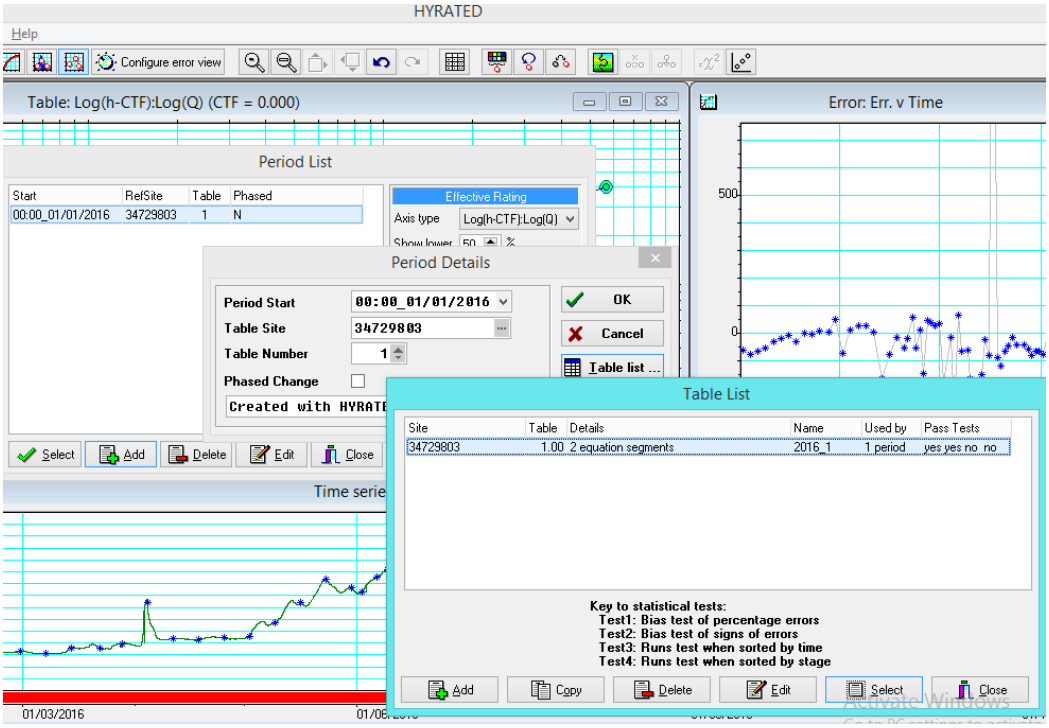


Figure 9: Adding new period list

g) See the table and Time Series Stage vs Time windows for any errors in the imported data

Figure 10: Window for Rating of station

h) To develop a good rating curve, divide it into different periods then in multiple rating curves.

Note: Error in discharge data can be corrected using **Hydstra Database Manage - Site Manage** by double clicking on **Site, Gaugings and Ratings Metadata in HYEXPLORER.** Then **search site** and **click GAUGINGS- Gaugings** as shown in figure 11. Similarly, if a discharge value is to be delete then select the particular date

and click the delete button  .Filter can be applied to delete the gauging's of particular year (s). Please see the ***section 2.4.1.***

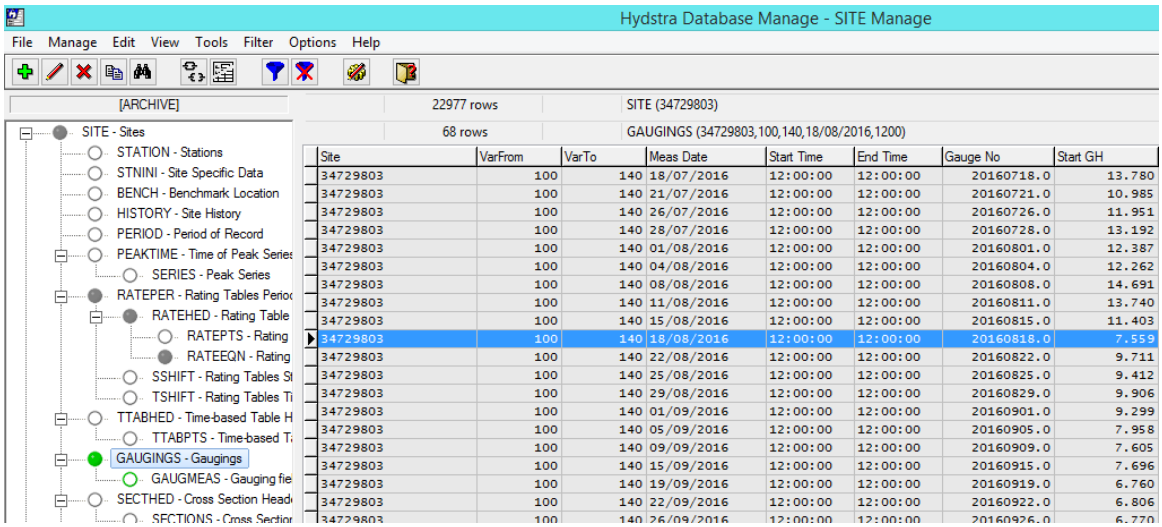


Figure 11: Selection of gauge for editing

- If error view vs time shows zero error then shift has been computed. Therefore, first delete the calculated shifts and then adjust the curve. ***See the section shift calculation*.**

Accurate discharge calculations from available gauges depends upon the best fit rating curve for the certain period.

i) Save the rating curves using **File/ Save to archive**. Rating will be saved in archive file.

5. Computation of stage Shifts

Run the **Compute Stage shifts** under **System Administration** folder. Enter the required information i.e., ***Site ID and Data source file (imported in last step)***, the year(s) for which the shifts are to be compute.

Note: if shifts are to be computed for the year 2016 then a first discharge measurement value should be entered for the year 2017.If the measurement of last day of 2016 is available then it is not required to enter the measurement of 2017.

If the shift is not computed for a particular day(s), it means the period is starting from the day of measurement then change the date of start of the period.

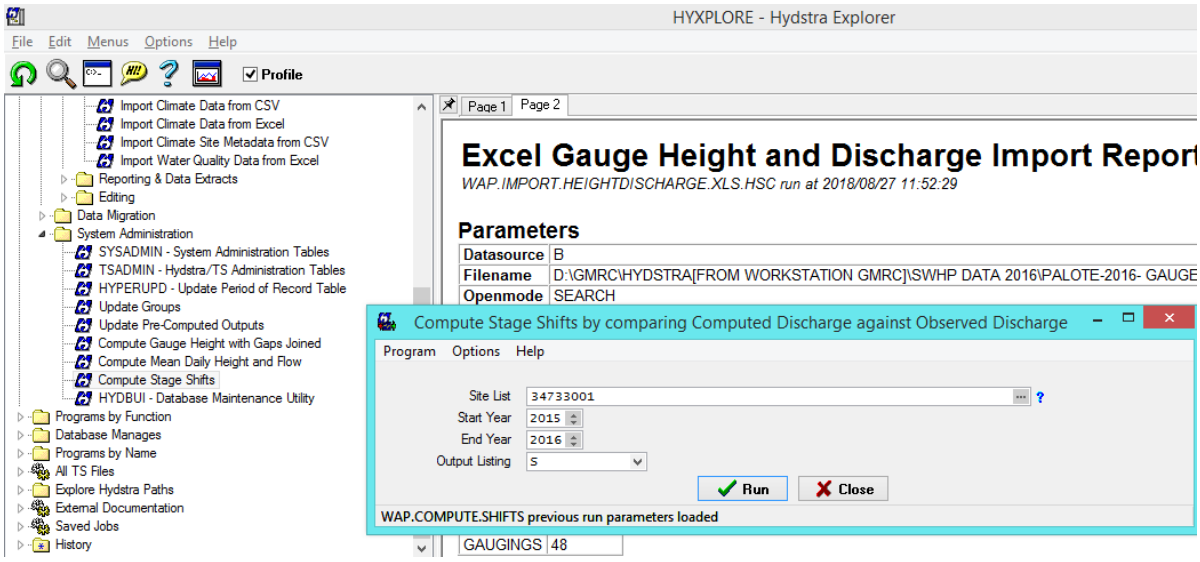


Figure 12: computation of gauge shifts

Note: If it is required to draw rating curve again then first delete the calculated shifts for particular year (***see section 10.1.2***):

6. Computation of Mean Daily Height and Flow

a) **Archive the work file** which was imported at first step but keep a copy of it so that if rating curve is to be modified then it should be available.

b) Run the **Compute Mean Daily Height and Flow** under **System Administration** folder. Select the site and **Data Source 'A'** i.e., Archive file.

c) Run the Time-Series Data option under Company Favourites. Open the files using the Work Bench.

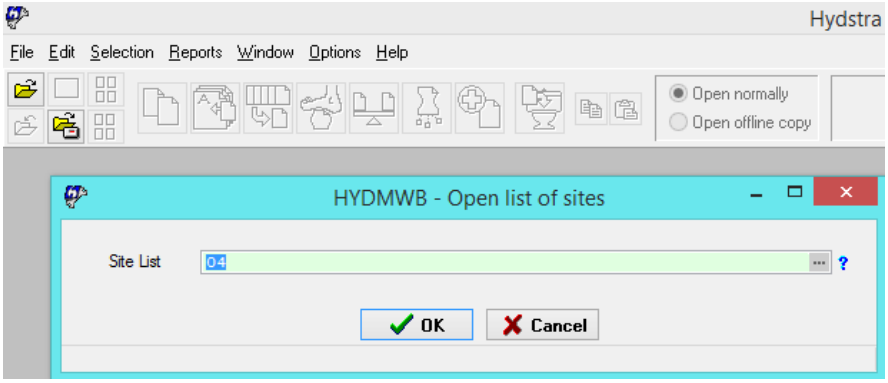


Figure 13: Open site in Work Bench

7. Correction and comparison of discharges

a) Copy the archive file into work file so that any changes in the calculated discharges can be made, if required.

Figure 14: copying archive file

b) Correction and comparison of discharges of gauging locations on a single stream: Open the work file to see the graphical representation of computed discharges. In the graphics, added the discharges of downstream gauging station using a reference trace option.

Note: open the work file (a copy of archive file) first that needs correction and then follow these steps

a) **Uncheck** the read only box

b) Zoom the required area and Click on the **select mode or region select**.

c) Click on **move button** and drag the hydrograph.

c) Adjusted the discharges of upstream station where it was higher than the downstream stations (Figure 14).

d) Correction and comparison of discharges of gauging locations on a different stream:

For example the discharges at Chattar Kallas should be higher from the sum of the discharges of [redacted]. Following steps should be done in this case:

Figure 15: correction of discharges (gauging station on upstream side) calculated from best fit rating curves

Note: If data is to be delete from hydrograph then give the quality code 151-Data missing. The values of deleted data will be replaced with -1.

8. Save and print options for the reports

Once the user is satisfied with the computed discharges then report of the particular station can be generated using the following methodology:

8.1. Using the option '*Report Daily discharge for year'*

Report of a selected station(s) can be generated in '.html' format using the following procedure.

- Double click on 'Report daily discharge for a year'
- Select the site and data source, year and other parameters
- Write the name of file at a selected path with extension .html. File will be saved in html format at the given path that can be inserted in Microsoft word, if required.

Note: Discharge report of each station can be saved in a particular folder e.g., E:\Final Reports\2018\Besham Qila.html

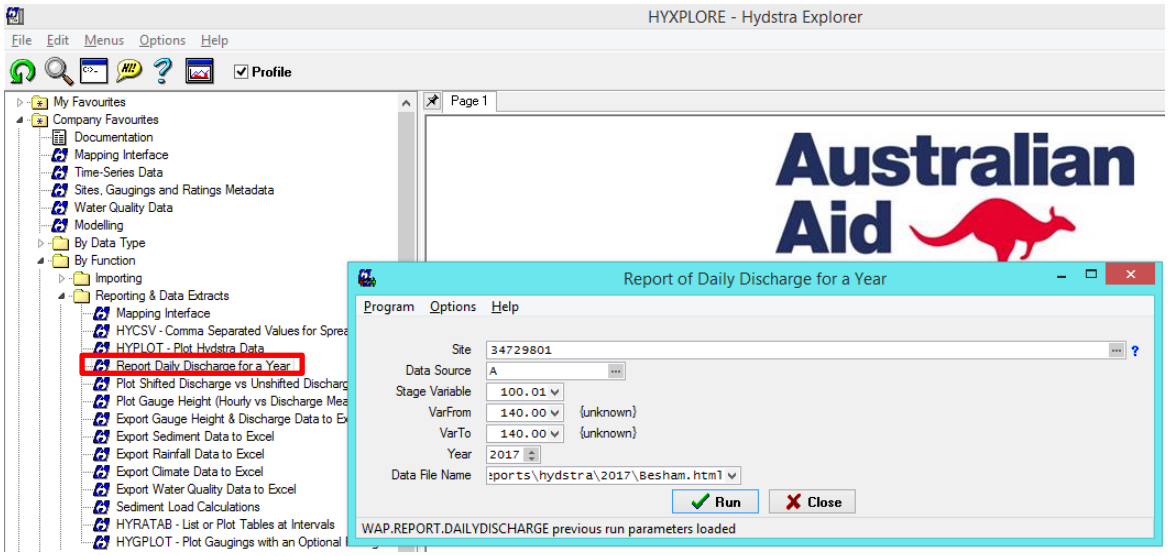


Figure 16: Creating report in html format

Important

VarFrom 100.01: discharge is calculated from rating curve

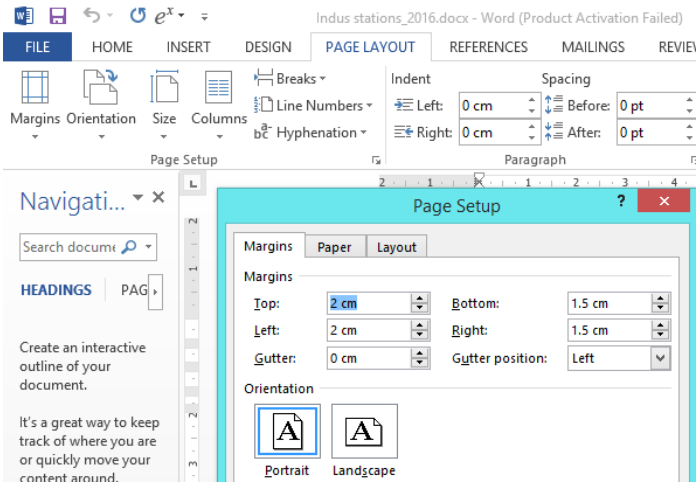
VarFrom 140.0: discharge is taken from the calculated/finalized discharges from file

Note: Above method is recommended to generate reports. However, some other options described in ***section 13*** may also be used to generate the reports.

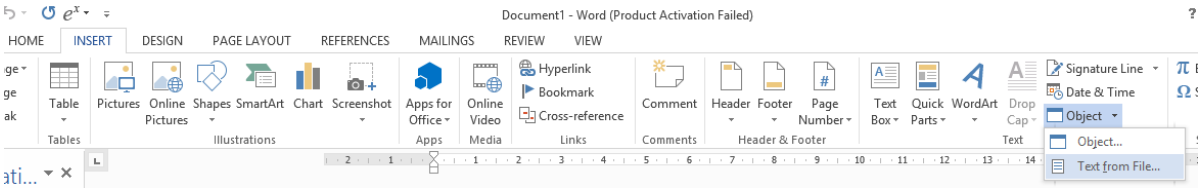
9. Creating Binder for all discharge sites (Volume 1 of SWHP Report)

When discharges for all the stations are calculated and saved in .html format in the selected folder then add all the files should be inserted in the word file.

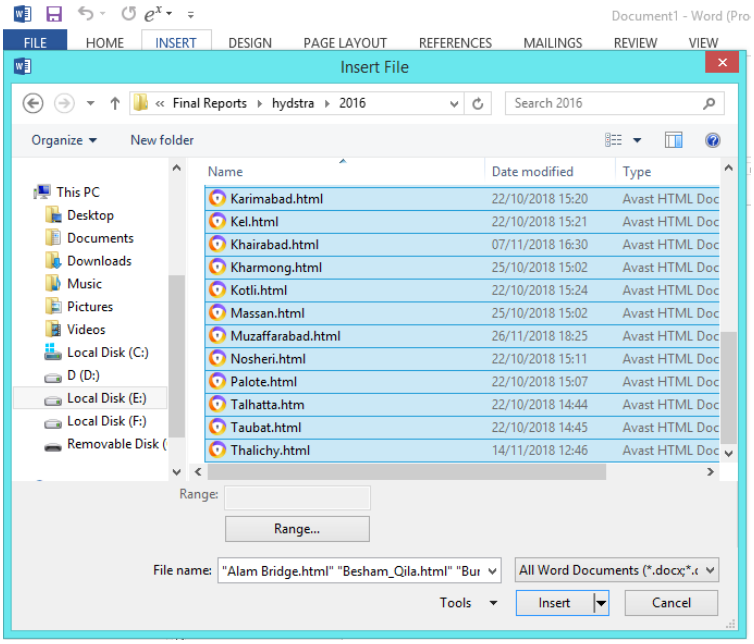
- For this, **Open a new word file**. (Select the A4 Page size)
- Adjust margins as given below



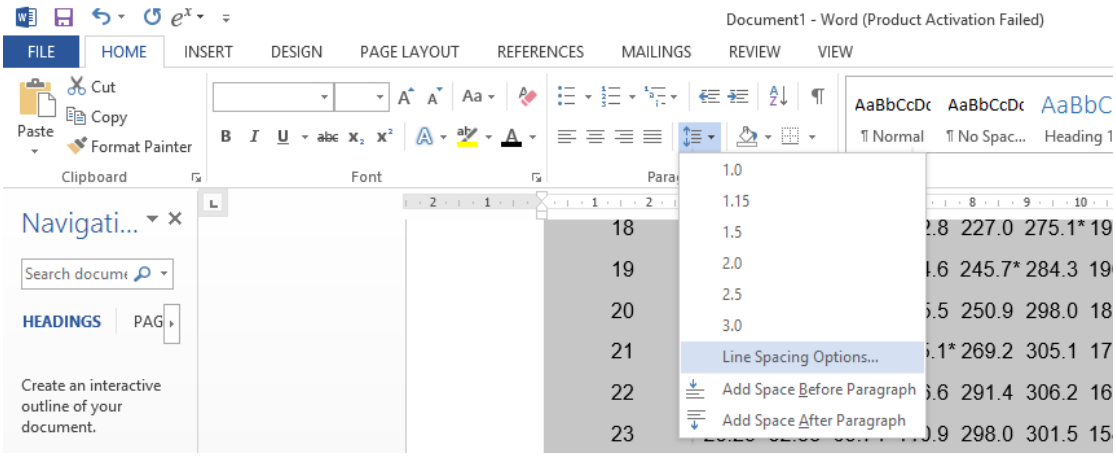
- Go to ***Insert tab*** of word file and click on ***Object*** and select ***Text from File***.



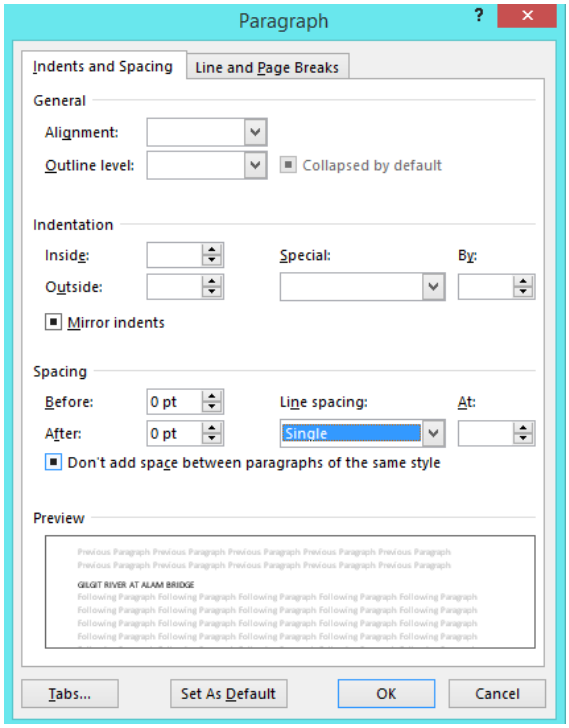
- Select all the .html files in the selected folder and click ***Insert*** button. All the files will be added in the new word file.



- Select al data by Cltr A and change the font Arial and size 10.
- Click on line spacing option under the Home tab



- Select the zero spacing and single line spacing as given in figure below.



- Delete a spacing before each station then all the stations data will be adjusted to single page.

10. Some Additional Options in HYDSTRA

10.1. Application of filter tool to delete the gaugings and computed shifts

10.1.1. Deleting Gaugings

- Select the **Site, Gaugings and Ratings Metadata in HYEXPLORER**
- Select the **Gaugings-Gaugings**
- Select ***filter*** and write equation as shown in figure to select the shifts of particular year

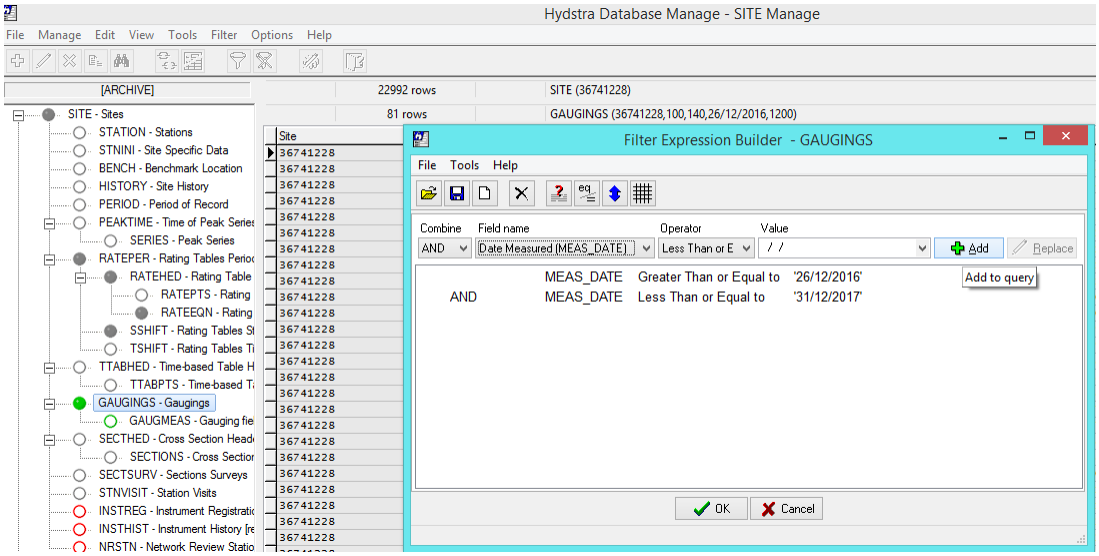


Figure 17: Application of filter tool to select the gaugings of 2016.

- Select the ***delete button*** or Go to ***Edit/ delete***, a window will open.
- Select the all record in filtered view of Gaugings and click ***OK***.

10.1.2. Deleting Shifts

- Open hymanage i.e., HYDSTRA Database Manage – SITE Manage
- Select the station using find key value tool
- Select the SSHIFT-Rating table shift.
- Select filter and write equation as shown in figure to select the shifts of particular year.

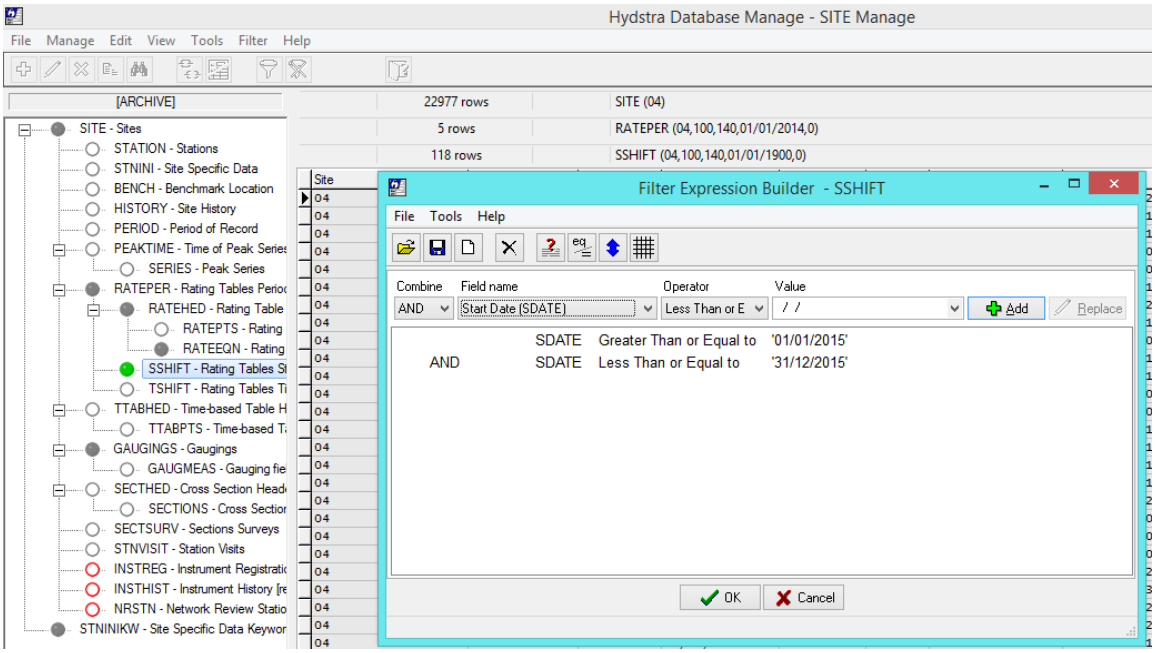


Figure 18: Selection of Gaugings of selected dates/year using filter tool

- Select the ***delete button*** or Go to ***Edit/ delete***, a window will open.

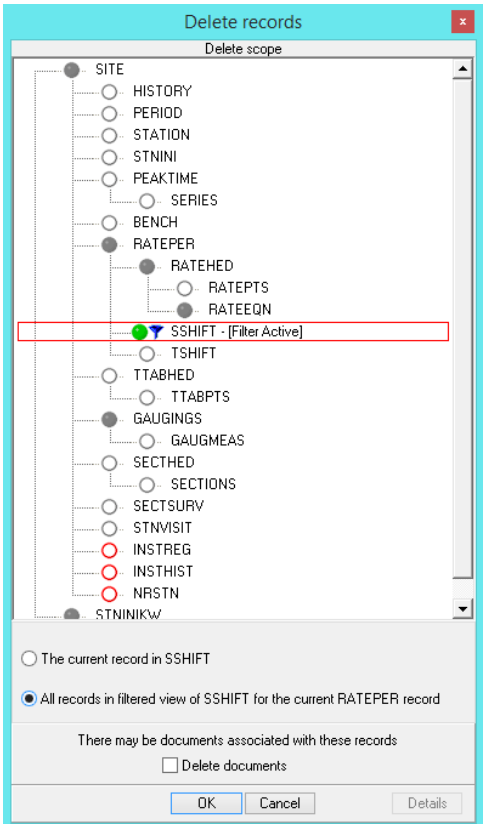


Figure 19: Selection of Shifts of selected dates/year using filter tool

- Select the all record in filtered view of SSHIFT… and click OK. Now the hydrated will show the unshifted error view.

10.2. Plotting Rating Curve with equation

- Run ***HYGPLOT***
- Select the site, start date, end date and other required parameters as shown in the Figure

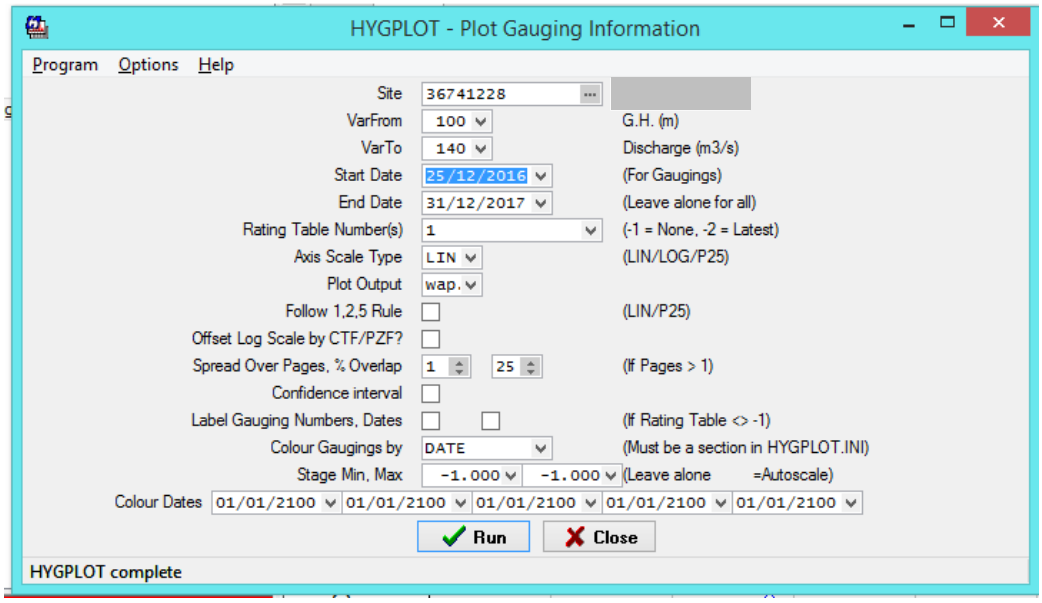


Figure 20: HYGPLOT for plotting rating curve

- Enter the following path in *advanced options of plot output*

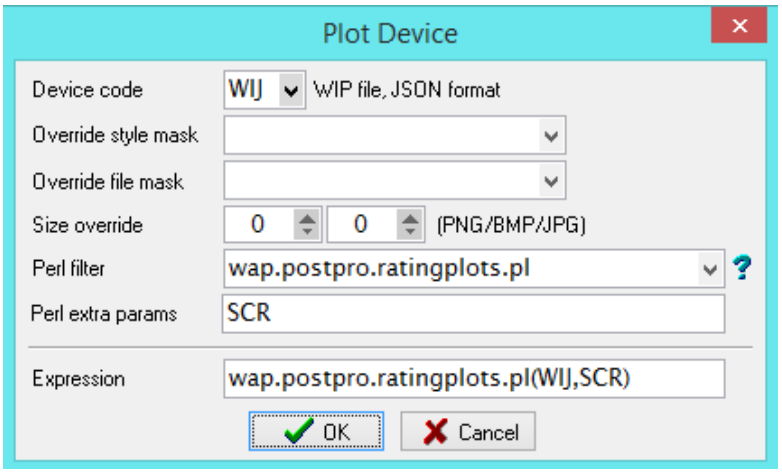


Figure 21: Plotting rating curve for selecting period using hygplot

11. Combining the flow of upstream sites and its comparison with downstream site

1. Run ***hycrsumx.hsc***
2. Enter data

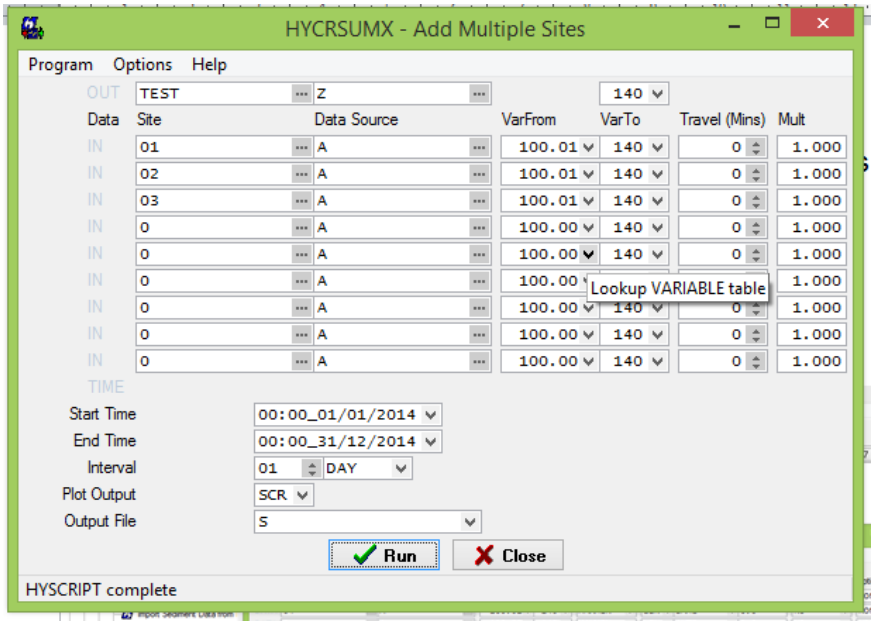


Figure 22: combining the flows of sites using hycrsumx

3. Click the run button.
4. Run ***Hyplot*** and enter the site created above i.e., TEST with data source Z and the site which is to be compared i.e., 04.
5. Select same in bottom for downstream site for same vertical axis.

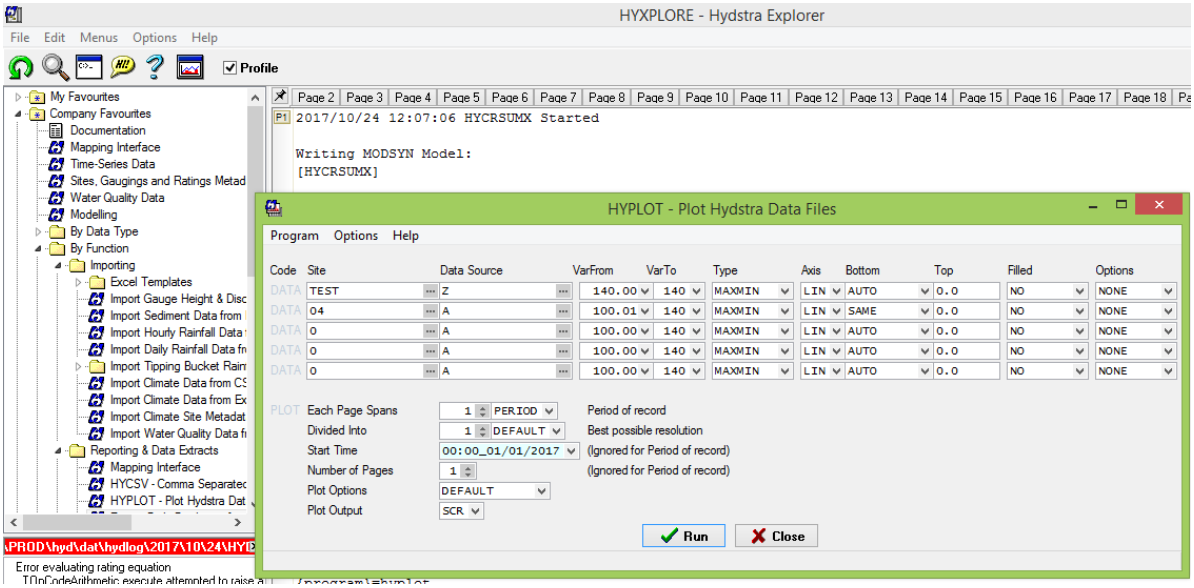


Figure 23: Plotting of uspstream sites and its comparison with downstream site

6. Click ***Run*** button. Hydrograph will be appeared.

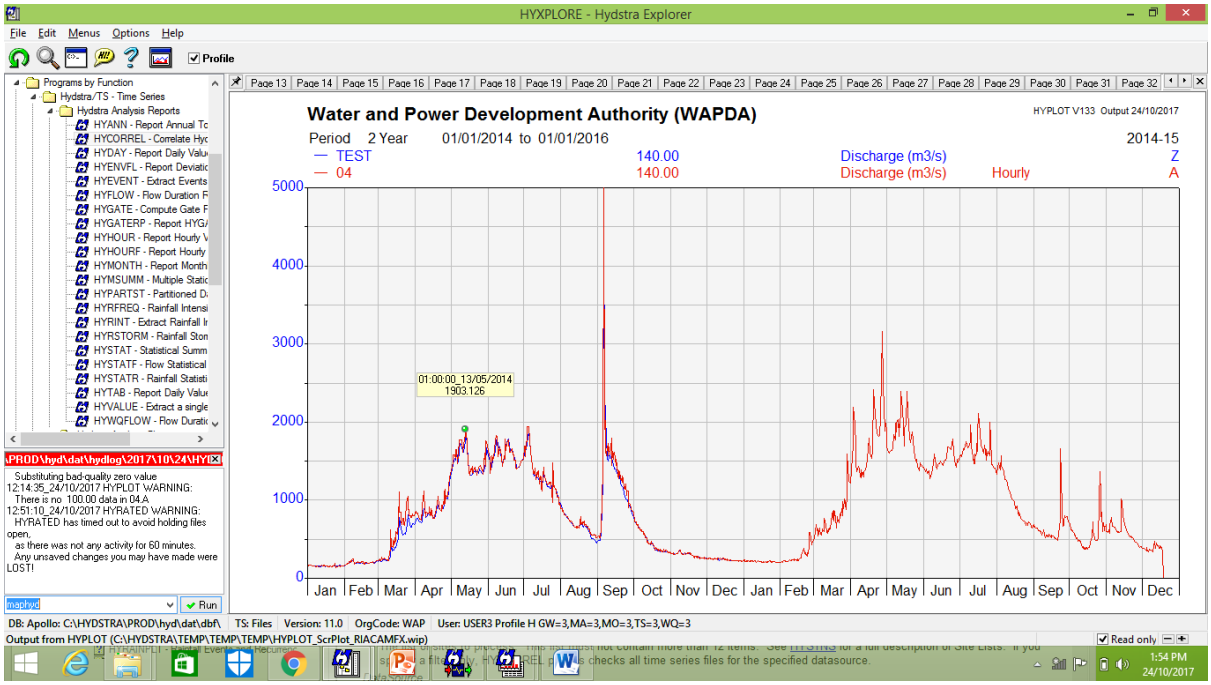


Figure 24: comparison of discharges of two sites

12. Comparison of Shifted vs non-shifted discharges

- Under system administration run compute gauge height with gaps joined for the selected sites, if not run earlier. Calculated gauge height with gaps can be seen in a work bench.

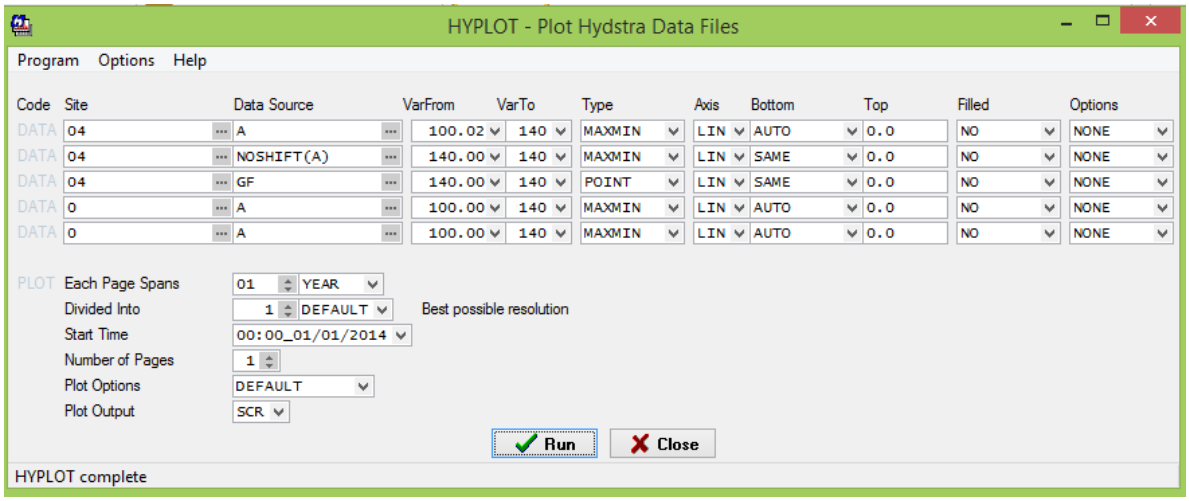


Figure 25: Window for entering the details for comparison of shifted vs non-shifted discharges.

Figure 26: Comparison of shifted vs non-shifted discharges

Note: If it is required to change the computed daily discharges then all above hydrographs can be viewed in a workbench by opening time series data and further procedure is as follows:

Procedure:

Open the site first, which need corrections and then the other hydrograph using open trace option. Before changing the daily discharge, first copy the archive file into work file. After changes archive the work file.

13. Save and print options for the reports

Following methods can be used to save and print the reports

13.1. Method1: Using the option '*Report Daily discharge for year'*

Report of a selected station(s) can be generated in '.html' format using the following procedure.

- Double click on '***Report daily discharge for a year'***
- Select the site and data source, year and other parameters
- Write the name of file at a selected path with extension .html. File will be saved in html format at the given path that can be inserted in Microsoft word, if required.

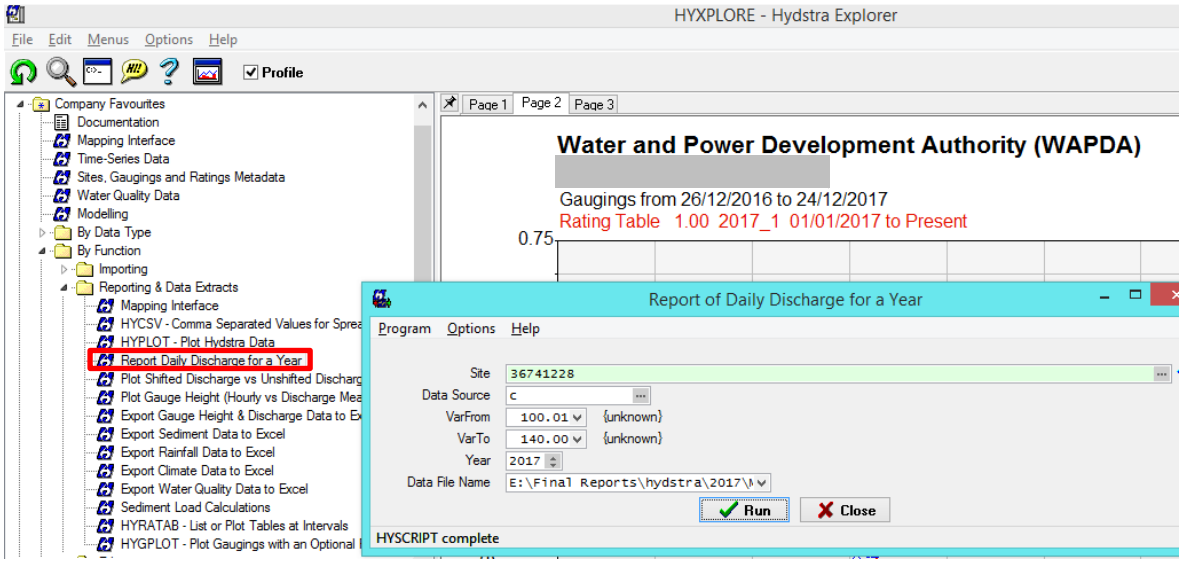


Figure 27: Creating report in html format

Note: ***Above method is recommended to generate the reports***. However, following other options may also be used to generate the reports:

13.2. Method2: Directly printing of files open in HYDSTRA explorer

Reports open in ***HYDSTRA explorer*** can directly be taken print individually as well as all files by using the ***file/ print*** all.

13.3. Method 3: Viewing the data in MAPHYD window

1. Select the ***site and view*** the data, a mapView window will open
2. Select the required report to open and print

Note: if reports are not available for any new site then **run the HYBATCH**

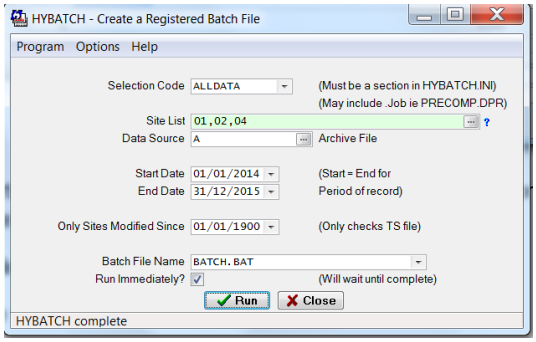


Figure 28: Window to run hybatch

Before running HYBATCH, run the following so that data may available in reports otherwise reports will be empty.

a) Compute gauge height with gaps joined
b) Compute daily mean gauge height (takes lot of time)
c) Compute daily mean discharge

13.4. Method 4: Generate report for all sites using HYBATCH and HYBATCHW

This method completes in two steps

Step 1: Run *HYBATCH*

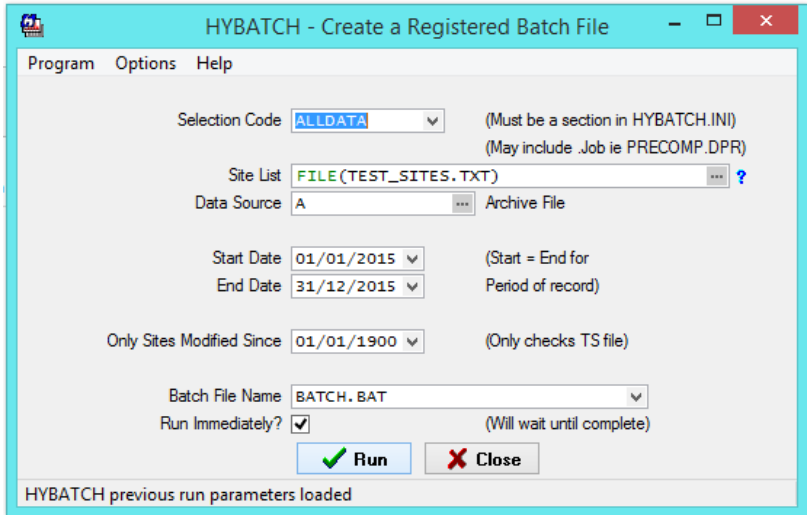


Figure 29: window to run HYBATCH to create the reports for each site

This option creates the report for each/ selected sites and save it at the following location.

C:\hydstra\prod\HYD\dat\ptmp\hybatch

Step 2: Run *HYBATCHW*

This option creates a word document/ daily discharge report in a SWHP report format i.e., Volume I.

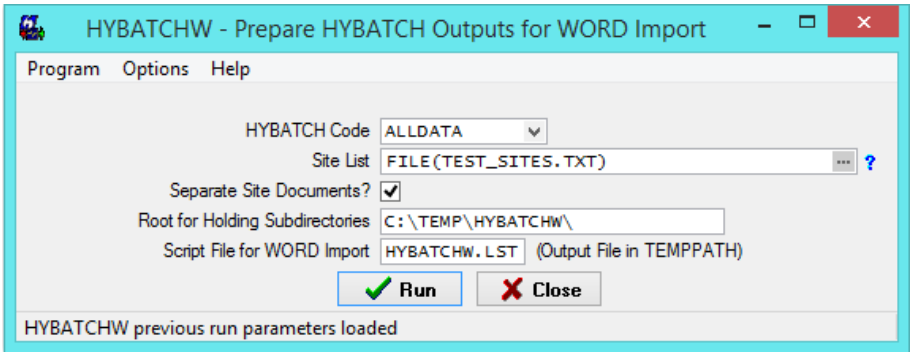


Figure 30: Run HYBATCHW to create the files in word format

- A file '**hybatch.dot'** creates at the location C:\hydstra\prod\HYD\sys\misc
- Open the file and enable the Content to enable macros, a window will open.
- Add the path of the hybatchw.list file i.e., C:\hydstra\TEMP\TEMP

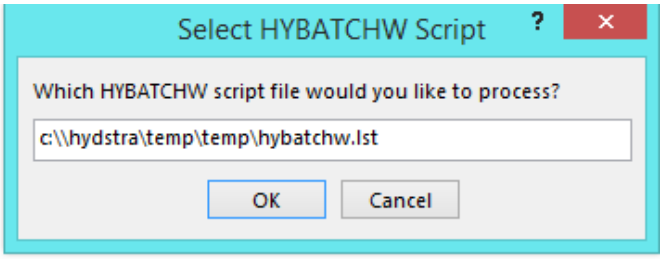
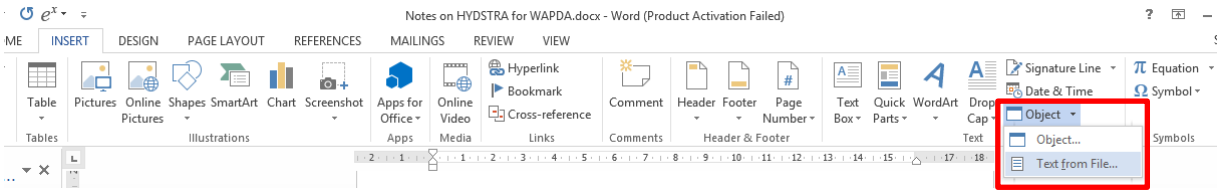


Figure 31: path for hybatchw.lst file

- Word files of each station will be created at *C:\HYDSTRA\TEMP\TEMP*
- **Open** new word file and ***select INSERT/Object Text from File***



- A window will open, **add the all word files** from the above location. Finally a report of that year (i.e., Vol. 1) will be created.

14. Same run for multiple sites

To run different options e.g., compute stage shift, open time series of sites etc. in a single click, enter site ID with comma separate or add all sites in a text file in a single column, write: File(name_of_text_ file.txt) in sites list.

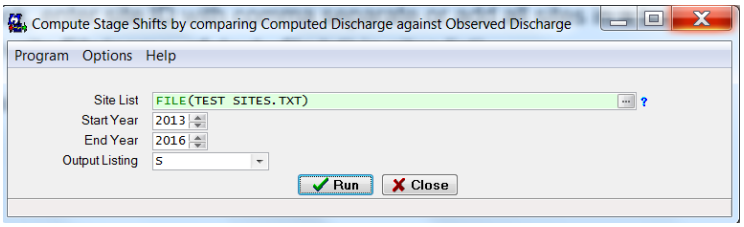
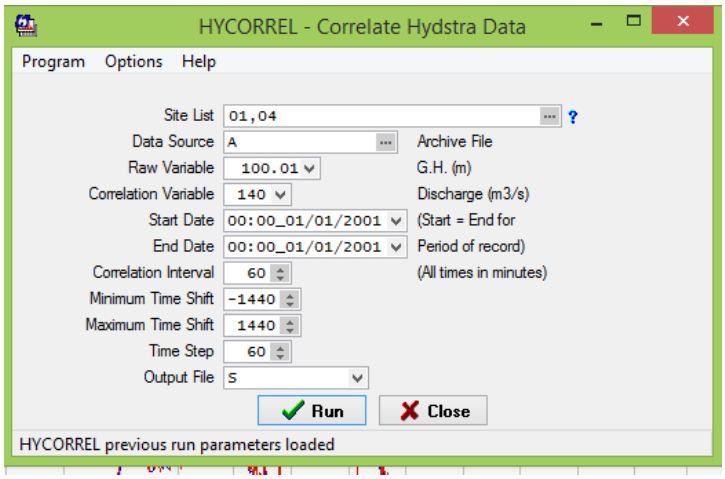


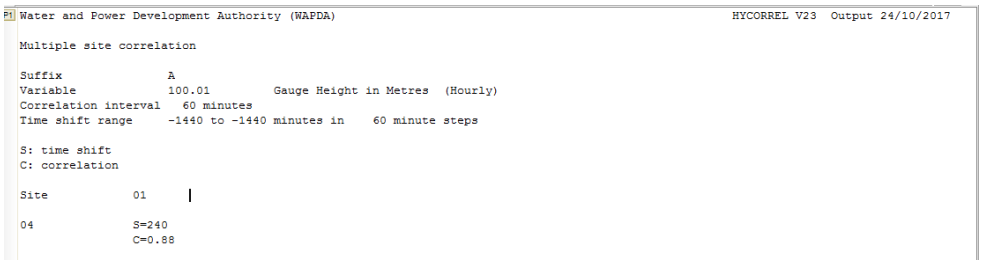
Figure 32: Window for same run of different computations in Hydstra

Note: This text file should be placed in *C:\HYDSTRA\TEMP\TEMP* folder.

15. Calculation of travel time

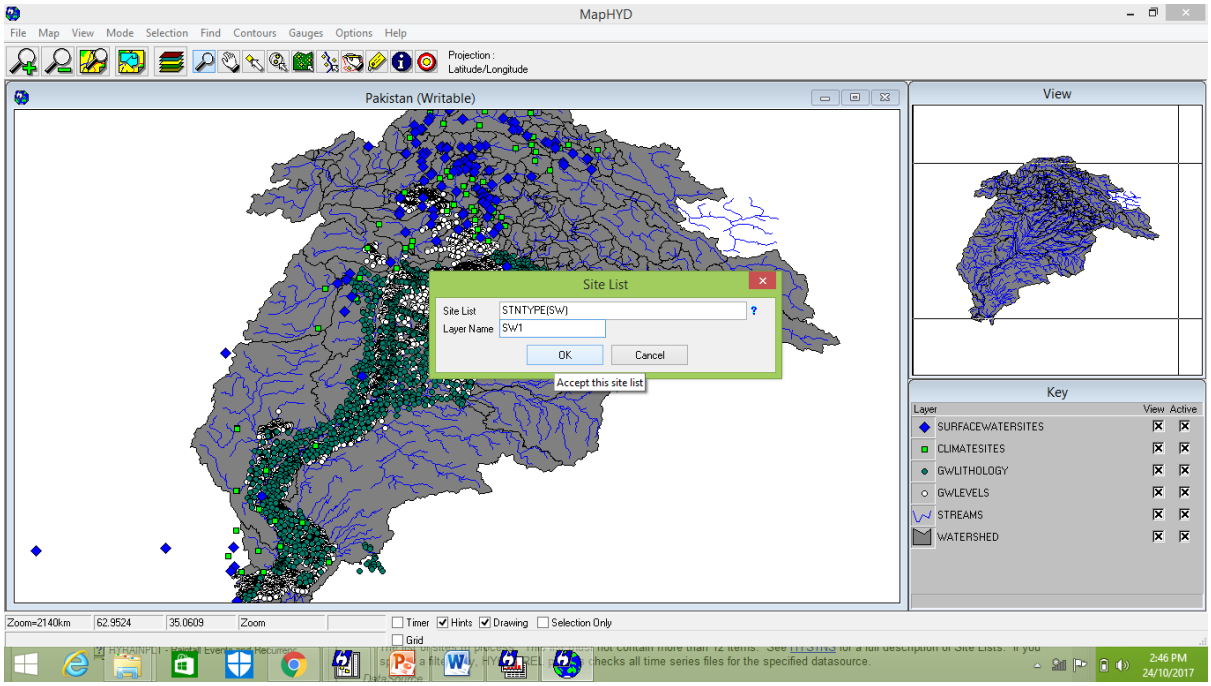
1. ***Run HYCORREL***
2. Add the sites separated with comma, select the correlation interval and time step (If sites are close then select the interval of 60 min).



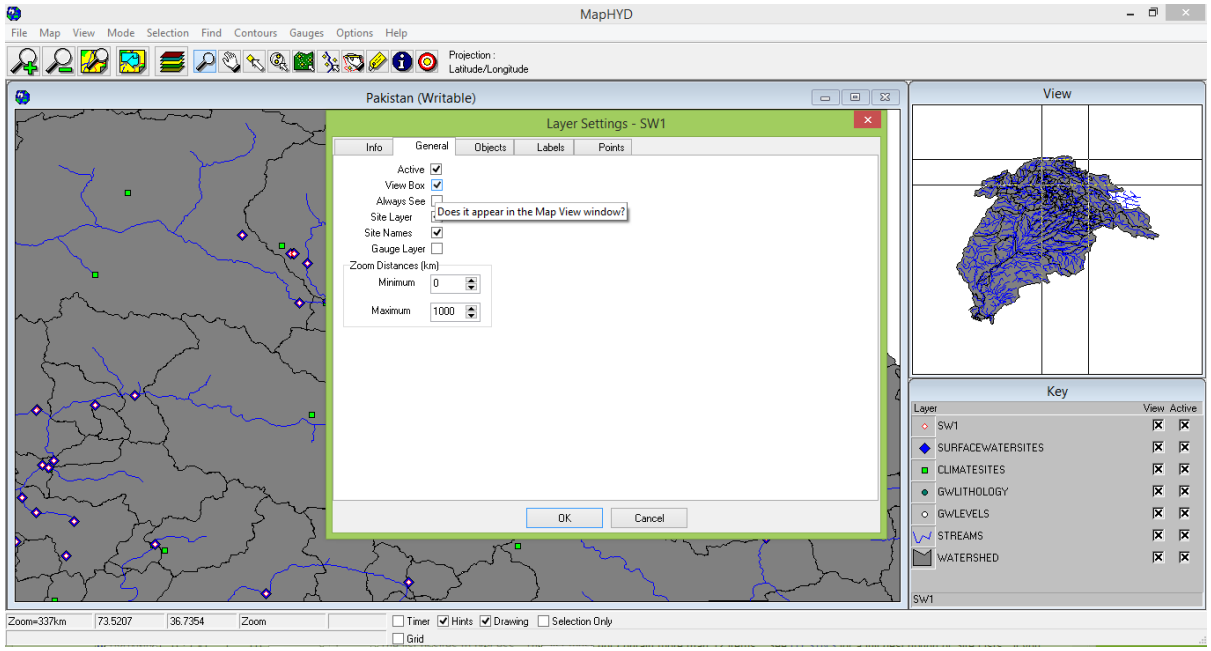


16. To add new site in a map window

1. Run ***MapHYD***
2. File/ open for edit and select the map
3. File/ build layer from site list
4. Site:STNTYPE(SW)
5. Layer Name: SW1 (check box to activate)



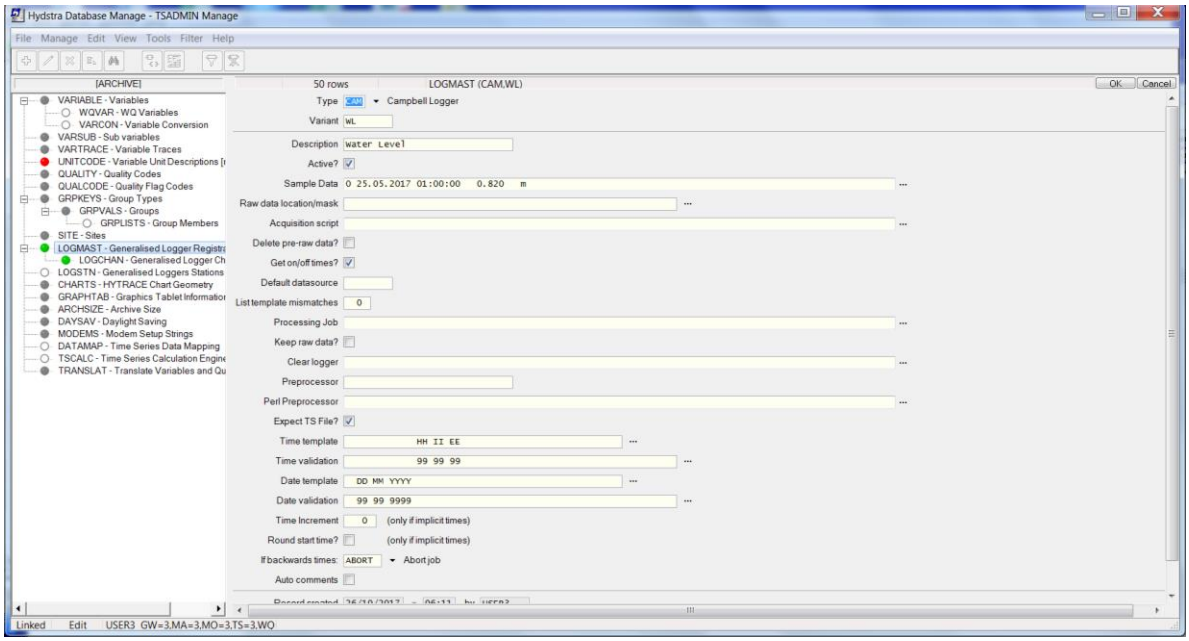
6. Click on Layer control
7. Double click on required layer to edit the properties of layer

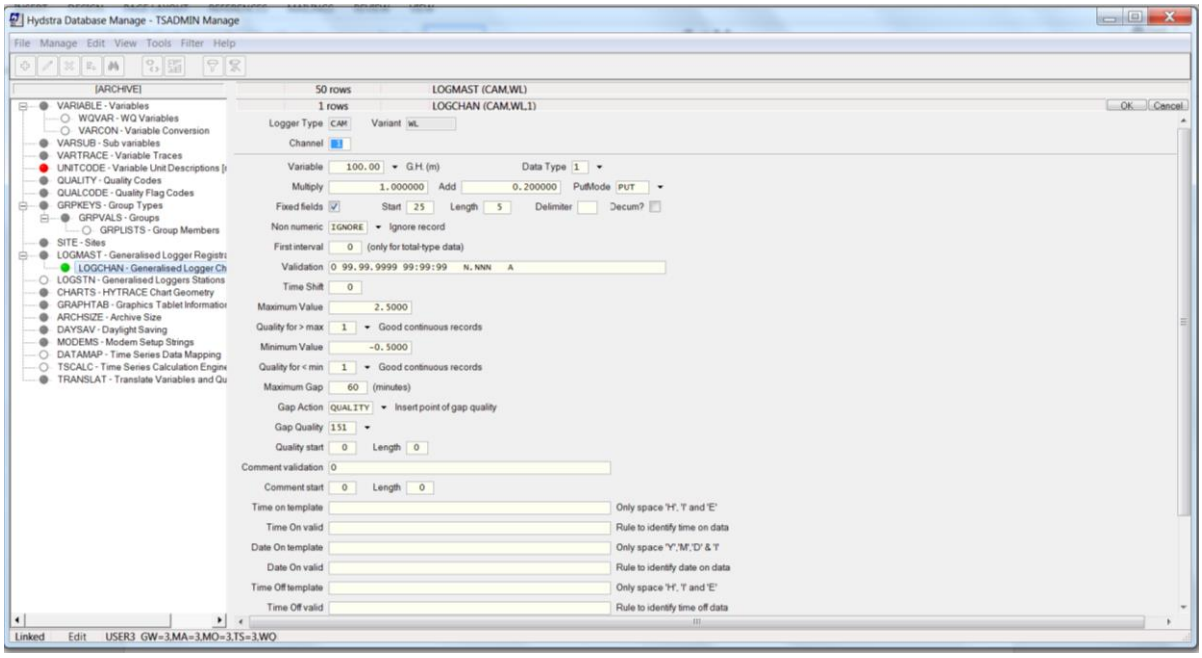


8. Save as new map.

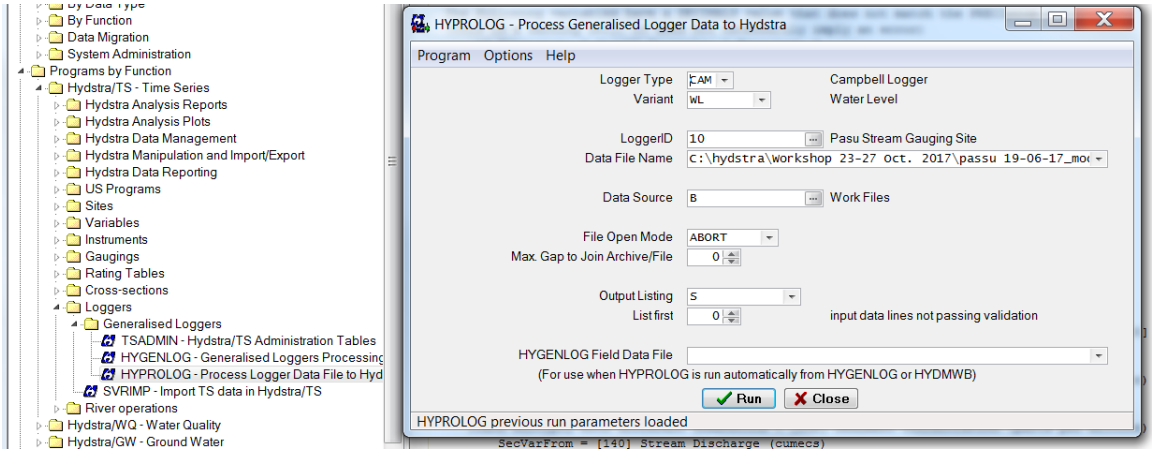
17. To create time series in HYDSTRA from data logger data file

1. Open Program functions/ Hydstra/TS-Time series/ Loggers/ Generalized Loggers/ TSADMIN-Hydstra/ TS Administration Tables
2. Select LOGMAST- Generalised logger registration





3. Run hymkhelp to add the cam logger type in the list of logger type.
4. Run HYPROLOG and add the required information.

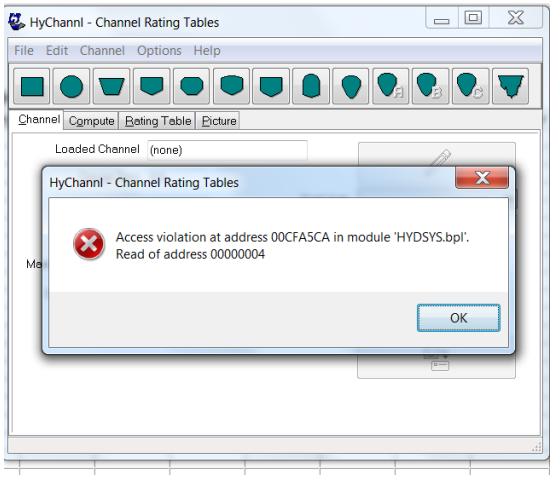


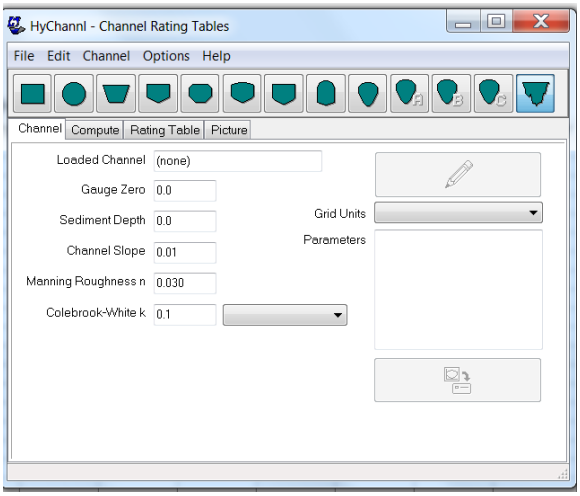
Now we can see the data imported from data logger in workbench window.

18. Extrapolation of Rating for estimation of discharge

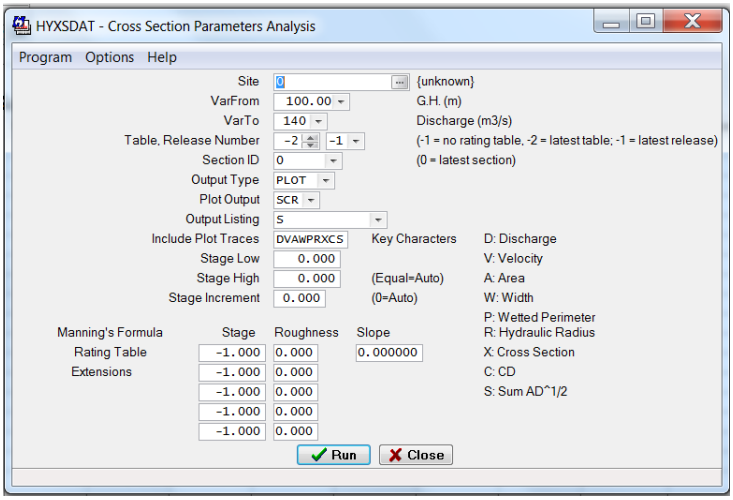
Method 1: Because rating curve is straight in a log-log graph then selecting the range to maximum gauge height to see the discharge.

Method 2: Option 1: run the ***HYCHANNL*** option and add the data in required fields.



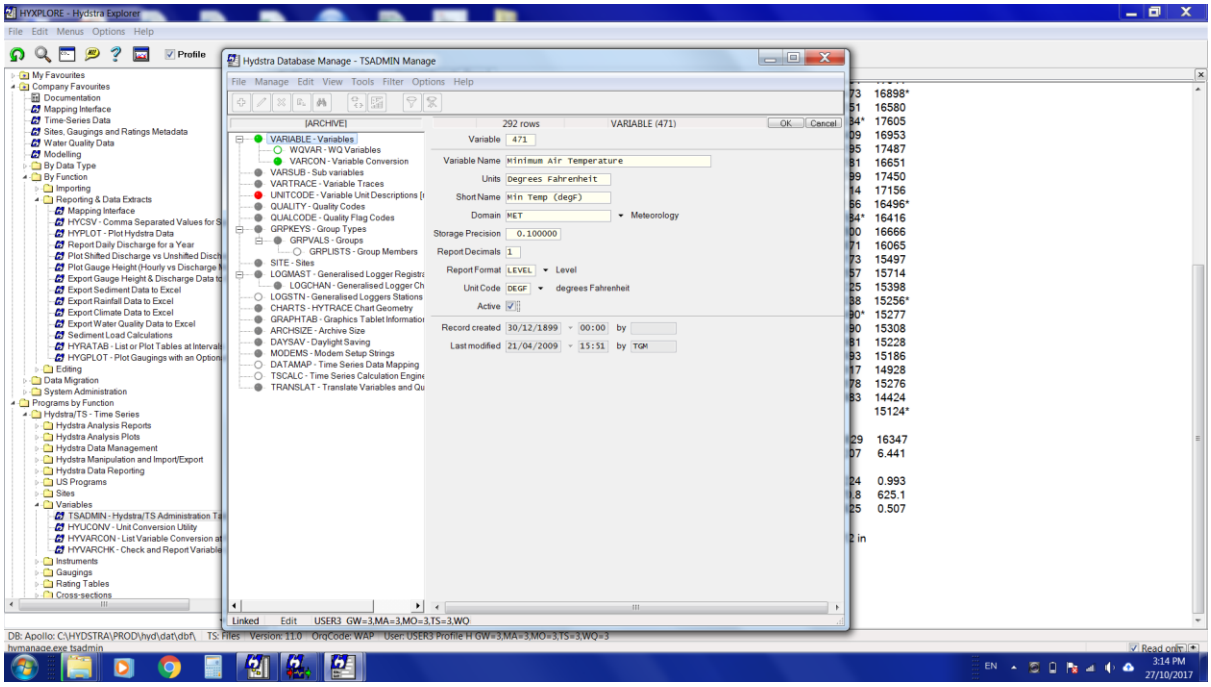


Method 2: Option 2: Run ***HYXSDAT*****,** is an advanced than previous that uses multiple roughness values.



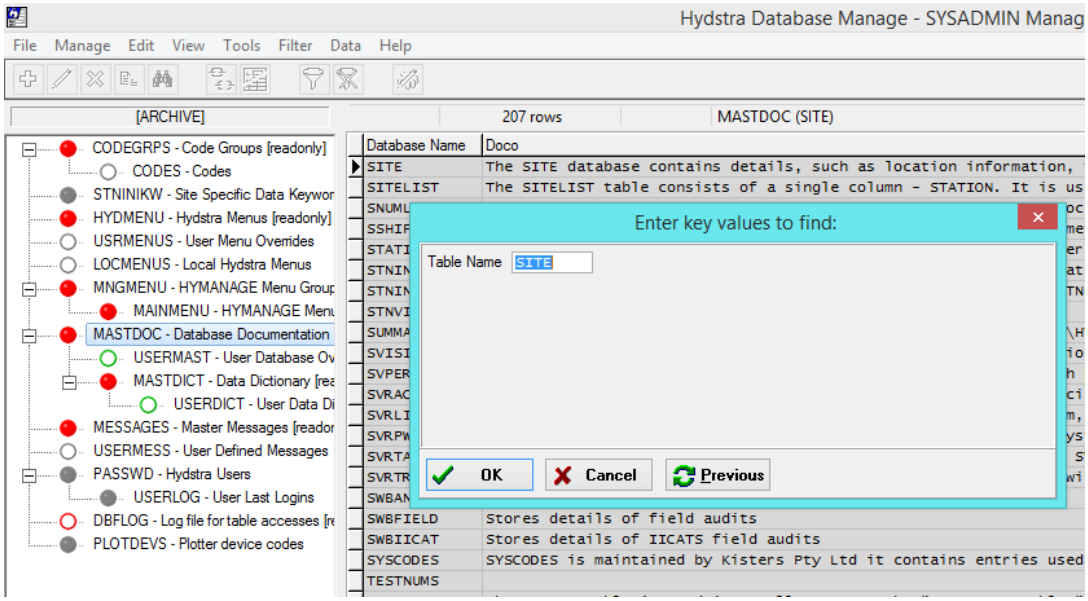
19. Activation of unit of any parameter in the list

In TSADMIN/ VARIABLES/ SELECT THE VARIABLE IN LIST/ EDIT AND CHECK THE ACTIVATE BOX.

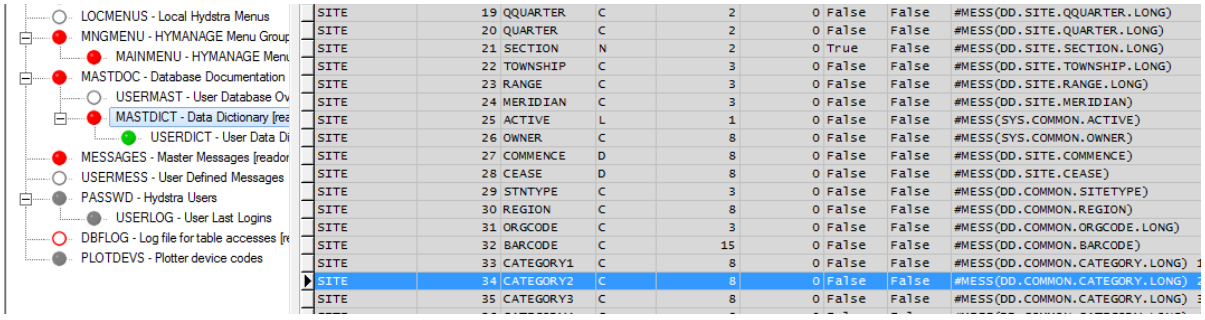


20. Editing in the Site information e.g., adding province name or adding new field in the Site window

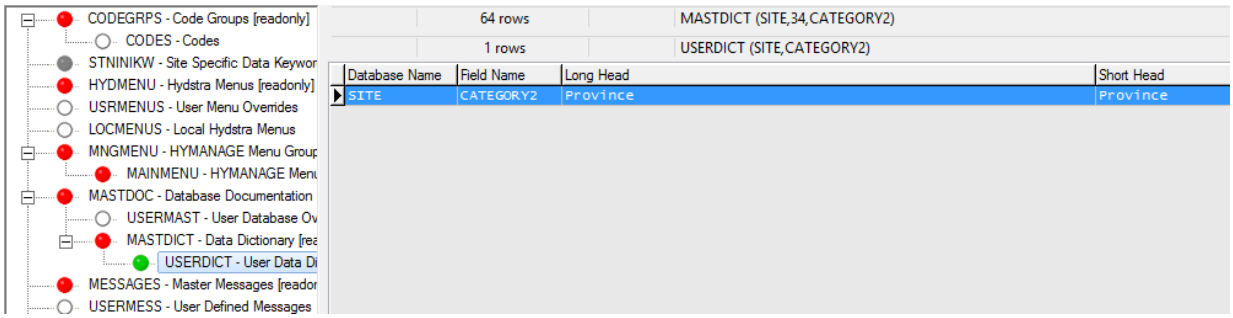
1. Run ***SYSADMIN***
2. Select ***MASTDOC*** – Database Documentation
3. Open **Find** option and write **Site** in Table Name and click **OK** button



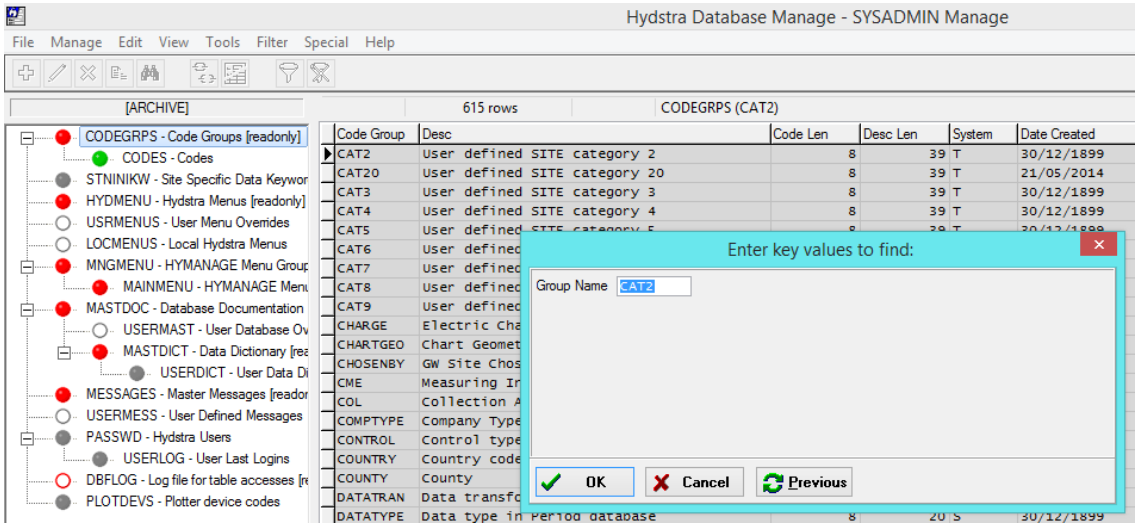
4. Select the ***MASTDICT*** – Data Dictionary then select the Category2 that contains province information (if someone want to add new information in Site window then select a category with no data i.e. Category 3 or 4 etc.)



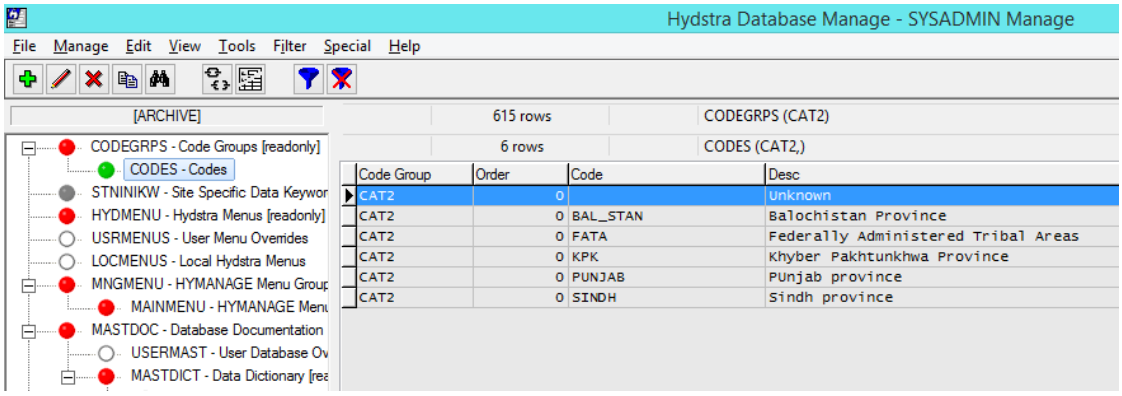
5. Select ***USERDICT*** to see the information available in category2. (otherwise add new record using plus button).



6. Select ***CODEGRPS*** - Code Groups
7. Open Find and enter **cat2** (or required category)



8. Select ***CODES*** – Codes and add/ edit the provinces information as many required using the add or edit button.



9. After required editing close the window the new window will appear for information that CODEGRPS/ CODES tables have been updated click Yes to accept the changes.
10. Run ***HYMKHELP*** to update the changes in Hydstra.

21. Copying time series data from one system to other system

Time series data i.e., gauge heights and discharge can be copied and paste from one system to other by using the following procedure.

- Open the folder

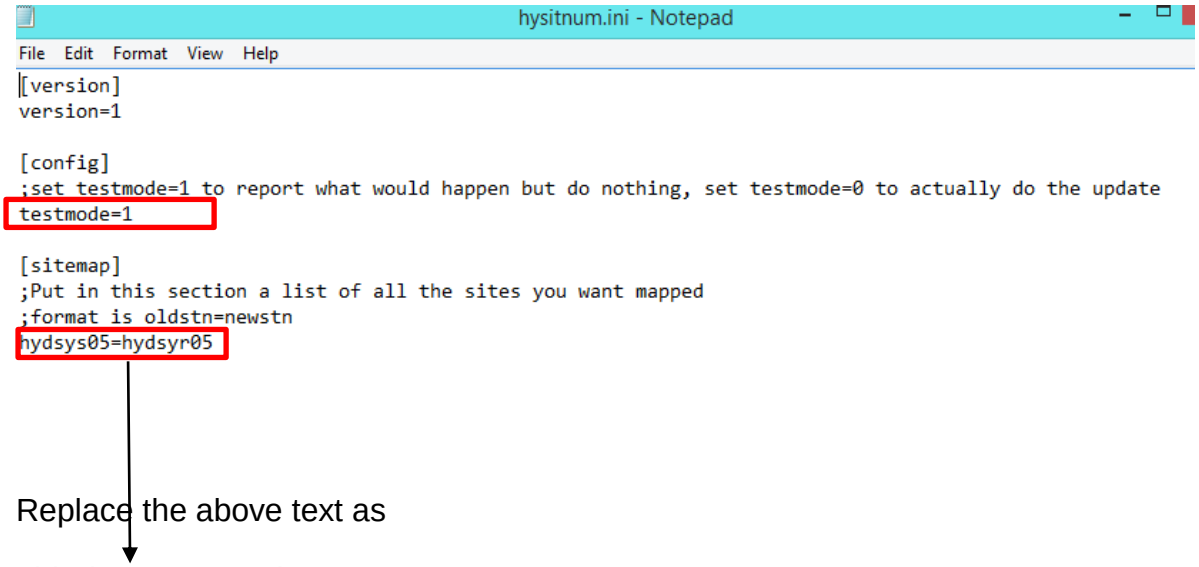
E:\hydstra\prod\HYD\dat\hyd

- Search the site by giving the site code with '.a, .ax and .BAK' extensions
- Copy all the files and paste it in the same folder in other system

Note: only the archive file is copied. Measured Discharges data, Ratings and other parameters are not copied.

22. Changing the site ID

- Copy the HYSITNUM.INI from misc path i.e.\prod\hyd\sys\misc and paste at INI folder i.e.\prod\hyd\dat\ini



Replace the above text as

old Site ID=New Site ID

Number of sites can be added in the same format.

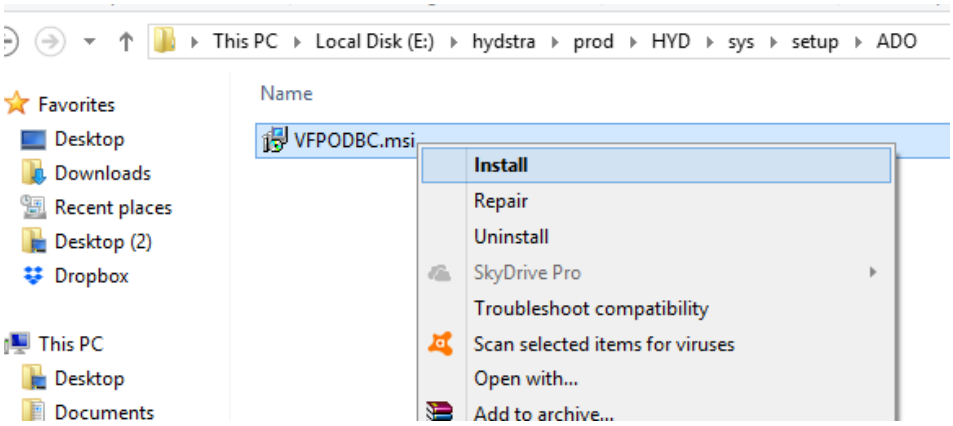
Note: replace 1 with 0 at testmode=1 in the hysitnum.ini file to actually do the update otherwise do nothing to run as test mode.

- Save the hysitnum.ini file
- Run ***HYSITNUM*** in hydstra
- Run ***hymkhelp***
- Read the HYSITNUM in Hydstra Help for more details

USER SOFTWARE INSTALLATION GUIDE

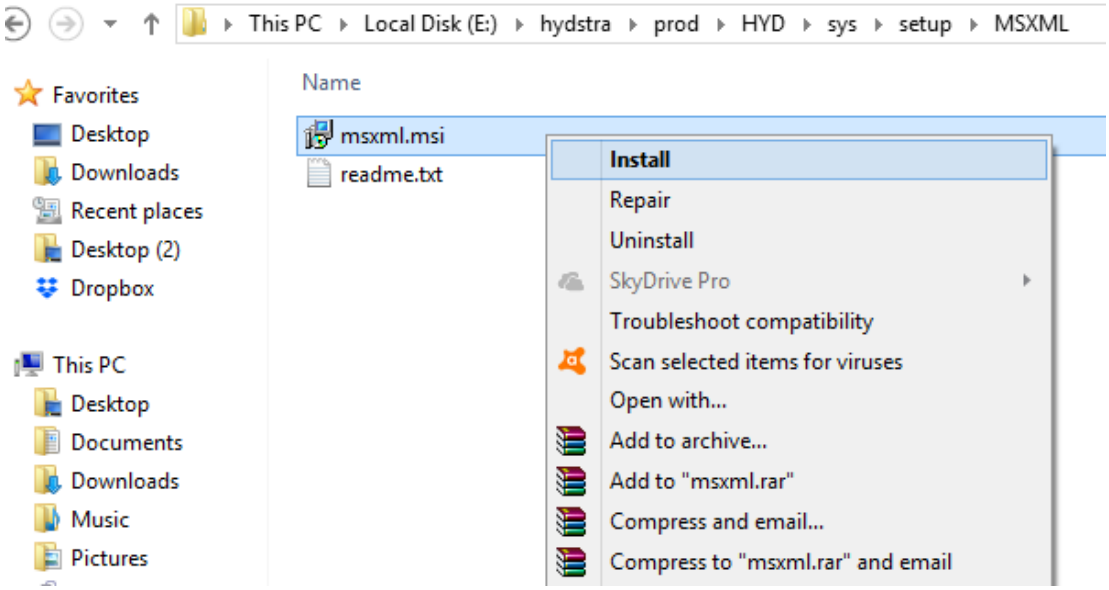
The step by step procedure for installation of HYDSTRA is given as follows:

1. Keep the copy of '**hydstra**' folder into the *E drive* of Hard disk. The entire Hydstra system resides in the \hydstra\prod folder including all data and programs.
2. Install the VFPODBC.msi placed at E:\hydstra\prod\HYD\sys\setup\ADO Folder



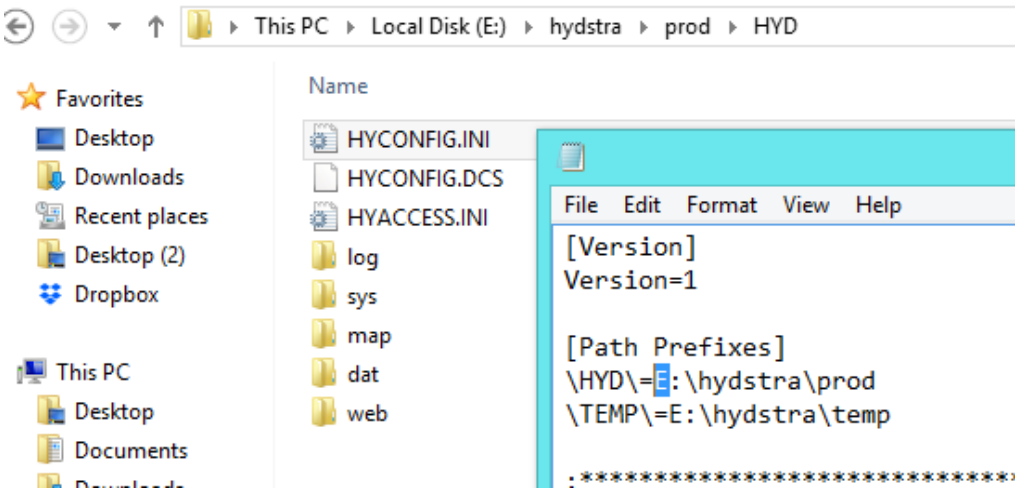
This will start an installation Wizard, follow the prompts accepted all defaults until it has been installed successfully

3. Install the msxml.mxi placed at E:\hydstra\prod\HYD\sys\setup\MSXML Folder



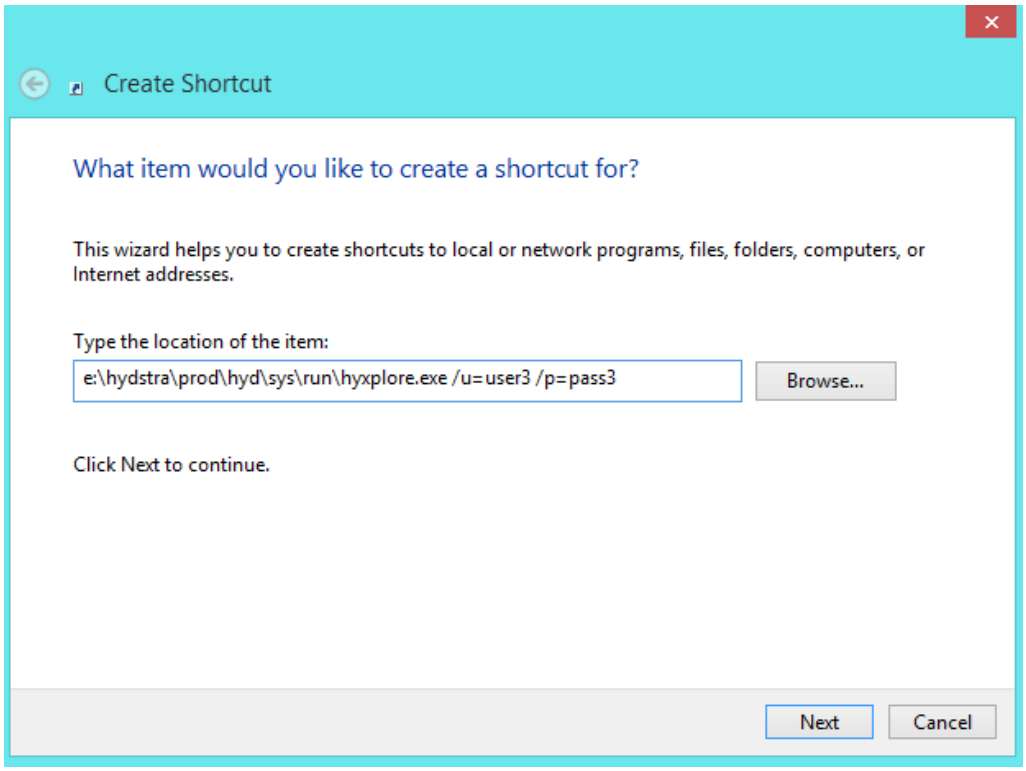
This will start an installation Wizard, follow the prompts accepted all defaults until it has been installed successfully

4. If the hydstra software folder is to place in different drive (not E:\hydstra\prod) then you will need to edit the [Path Prefixes] section of the \hydstra\prod\hyd\hyconfig.ini file:



5. Right Click on desktop and click on New\Shortcut and enter the following path then click on next.

e:\hydstra\prod\hyd\sys\run\hyxplore.exe /u=user3 /p=pass3



Note: the procedure for installation of hydstra is also given in the **'.html'** file available in hydstra folder.