Visualization and interaction system help document

In this help section, the discussion is on the visual parts of the system used for visualization and interaction approaches for visual analysis of the input datasets against time-series.

The main view of the visualization tool has two sidebars; left and right sidebars. The left sidebar show Home, Baseline data, Present Stations (These are Tanzania regions specific data) and help as presented in Figure 1 and Figure 2.



Figure 1: The Main view of the visualization Tool

read from the climate database. The user is able to choose the dates desired to be generated by this tool.

The user can then choose desired dates and places for comparison as in figure 3, Figure 4 and Figure 5. The date panel allows user to go back years using << or monthly using < and also g forward by using the opposite signs.



Figure 2: The Main view with present stations show on the left sidebar



Figure 3: The desired dates and places choose by the user

	Database visualization tool – Googl (2 unread) - 🗙 🎽 ijcir.mak.	le Chrome .ac.u 🗙 📔 ECAW Datat 🗙 📑 Facel	book × Miss BumBur × S	amputate - C X III Mwanaume r X	📬 🖪 🕸 🖘 🖘) 6:39 ALASIRI 🔅		
0	← → C ff 🗋 localhost/m	odel/graph/dashboard/index.php			☆ =		
	🏢 Apps 📄 Root Developmen 🚽	• Tanzania Radio St 🛛 💵 e-Learning : My	y V 🛛 e Millard Ayo 📅 Wells Fargo	🔽 beforward 🧳 Tanzania Tenders	» 📋 Other bookmarks		
7 ,	MBY	KISARAWE AGRICULTURE	🔲 KILIMANJARO INT. AIRPORT	KILWA MASOKO	KIBONDO MAJI		
		KONGWA ADMIN. OFFICE	KASULU	LUSHOTO AGRIC. OFFICE	LUPONDE FARM		
	MOROGORO	LUKUBA ISLAND	LAKE MANYARA MAJI	LINDI AGRICULTURE	LUSITU FARM		
A		MAHENGE MET.	MBEYA MET.	MANYONI DISTRICT OFFICE	MAFINGA BOMANI		
1	MTWARA	MPANDA BOMA	MOROGORO MET. STATION	MPWAPWA RESEARCH	MTERA		
	MUSOMA			STATION	MUGUMU PRIMARY SCHOOL		
<u>a</u>		MTWARA AIRPORT	MUSOMA MET.	MWANZA AIRFIELD	NAURURU		
۶_	SAME	NEWALA AGRICULTURE	NGUDU	NYUMBA YA MUNGU	NAMANYERE-NKANSI		
Y ?		NYANZA SALT MINES NO. 1	NZEGA	OLMOTONYI FOREST STATION	RUBONDO ISLAND		
	SONGEA	RUBYA SEMINARY	SAME MET. STATION	SINGIDA DISTRICT OFFICE	SHINYANGA MET		
	TABORA	SINGIDA DISTRICT OFFICE	SONGEA AIRFIELD	SUMBAWANGA AGRIC. STN.	TANGA AIRPORT		
		THEMI ESTATE	TABORA MET. STATION	TUKUYU AGRICULTURE	UKIRIGURU AGROMET		
	TZWA	URAMBO FARM NO. 10	USA RIVER VETERNARY	ZANZIBAR (KISAUNI) AIRPORT			
		Choose Weather data to display					
		💿 Solar Radiation 💿 Maximum Temperature 💿 Minimum Temperature 💿 Rainfall 💿 Relative Humidity 💿 Wind 💿 Dew Point					
		Generate Graph Reset					
ι							
			Copyright © 2014 Designed by Kao	leghe	v		

Figure 4: The user specifies the weather data type to be generated

ECAW Database visualization tool - Google Chrome 🕴 🗈 🕴 💷 🐠 6:45 ALASIRI 🔆								
👩 🖊 🔤 (2 unread) - 🔺 🖹 ijcir.mak.	ac.u 🛪 🖹 ECAW Datat 🛪 📑 (1) Fo	acebook 🗶 📜 Miss BumBur 🗶 🙎	amputate - 🤆 🗶 🎫 Mwanaume r 🗶	8 Diphallia - Ge 🗙 📄 SUASIS Logir 🗴 🦲				
← → C fi 🗋 localhost/mo	← → C f Dicalhost/model/graph/dashboard/index.php							
Apps 🗋 Root Developmen 📫	Tanzania Radio St 🛛 🐨 e-Learning : M	y 🗸 🧑 Millard Ayo 🚾 Wells Fargo	beforward Fanzania Tenders	» 📋 Other bookmarks				
	Please specify the parameters to generate graphs							
Present Regions 🗸	See alfe James Bate							
	Specify lower Date		Specify upper Date					
	2004-01-07		2008-01-25					
7	Choose datafiles to display							
	RUEMBE SUGAR ESTATE I	UYOLE AGROMET	ARUSHA AIRPORT	AMANI MALARIA UNIT				
a	ARUSHA AGRIC. OFFICE	BAGAMOYO AGRICULTURE	BINENGO TEA ESTATE	BUKOBA MET. STATION				
2	BUSTANI YA WANANCHI	CHUNYA AGRICULTURE	DAR-ES-SALAAM AIRPORT	DODOMA AIRPORT				
¥?	ENGARE RONGAI	GEITA AGRICULTURE	KIGOMASHA	HANDENI AGRICULTURE				
	IGERI AGROMET	IRINGA EXPERIMENTAL STN	ILONGA AGROMET	IRINGA MET				
2	KARUME AIRPORT (PEMBA)	KIBAHA AGROMET	KIGOMA AIRPORT	🔲 KAHAMA				
	KISARAWE AGRICULTURE	KILIMANJARO INT. AIRPORT	KILWA MASOKO	🔲 KIBONDO MAJI				
	KONGWA ADMIN. OFFICE	KASULU	LUSHOTO AGRIC. OFFICE	LUPONDE FARM				
	LUKUBA ISLAND	LAKE MANYARA MAJI	LINDI AGRICULTURE	LUSITU FARM				
	MAHENGE MET.	MBEYA MET.	MANYONI DISTRICT OFFICE	MAFINGA BOMANI				
	MPANDA BOMA	MOROGORO MET. STATION	MPWAPWA RESEARCH	MTERA				
L			STATION	MUGUMU PRIMARY SCHOOL				
	MTWARA AIRPORT	MUSOMA MET.	MWANZA AIRFIELD	NAURURU				

Figure 5: The Main view just before the user presses generate button to generate interactive graphs

The user can now press GENERATE button to instruct the visualization tool to generate the interactive graphs.

For instance, if the user chooses four stations to visualize the information, then the system is going to show years only as shown in Figure 6.



Figure 6: Weather data generator has generated the dataset between 2005-01-04 to 2009-01-23

Now, the user may decide to drag between the dates by holding left click and

moving the cursor to visualize the information in detail as shown in Figure 7. Figure 8 visualize the the chosen date from Figure 7.



Figure 7: The weather data visualized in detail by dragging between the timeseries



Figure 8: Detailed weather data as displayed by the visualization tool

Figure 8 includes more detailed information that is why the time series now show month with year instead of the years only. If you go further it will show date and then time as shown in figure 9.



Figure 9: Very detailed weather information show the dates of the month april 2006

Rainfall information is visualized using bar graphs as shown in Figure 10.



Figure 10: Rainfall data visualization

The rainfall data can be seen in each time, the rainfall was recorded. The detailed data will separate the information so that the differences of rainfall data of the same day can easily be visualized by the user as shown in Figure 11.



Figure 11: Very detailed rainfall data visualized as bar graph

Also, the system can be used to compare current weather conditions to modeled weather conditions as shown in Figure 12. It means it is possible to compare baseline information to the near-term conditions(2010-2039), Mid-Century (2040-2069) or End-of-Century(2070-2099) using RCP2.6, RCP4.5, RCP6.0 or RCP8.5 as shown in Figure 13. The left sidebar has present stations which present data for different regions. As the matter of fact, the years are maintained 1980-2009 for compatibility reasons. Near-term means plus 30 years, Mid-century means plus 60 years while End-of_century means plus 90 years. All the months correspond to each month across years.

ECAW Database visualization tool - Google Chrome 🛊 🗈 🖇 📼 4)) 4:34 ALASIRI 🔅										
0	👩 🔰 🕻 un X 😨 Africa X 🧟 Mour X 📓 Fwd: X 📓 Facel X 🖹 SUA X X 📓 www X 🕱 Danis X 📓 Jobs - X / 🖟 Web X 🎽 ECAV X 🐁 locali X 🛸 locali X 🛸 locali X									
	😓 🖸 🚹 🗋 localhost/model/graph/dashboard/index.php?reg=DAR%20ES%20SALAAM 🔗 😭 🗖									
	🏢 Apps 🗋 Root Developmen 🍦	Tanzania Radio St 🛛 💵 e-Learning : M	y V 🛛 🥶 Millard Ayo 🛛 🚾 Wells Fargo	🛛 🔽 beforward 🧳 Tanzania Tenders	» 📋 Other bookmarks					
	🖶 Home	Please specify the pa	rameters to generate	graphs for DAR ES SAL	AAM Station					
	🏟 agMIP Help	Specify lower Date	we graphs as you go	Specify upper Date						
	S Present Stations	Specify lower Date		Specify upper Date						
		Channe datasets to some som								
<u>a</u>	BUKOBA	TZDAOQXX[Baseline]	TZDACAXA[Near-term RCP4.5]	TZDACBXA[Near-term RCP4.5]	TZDACCXA[Near-term RCP4.5]					
· [DAR ES SALAAM	TZDACDXA[Near-term RCP4.5]	TZDACEXA[Near-term RCP4.5]	TZDACFXA[Near-term RCP4.5]	TZDACGXA[Near-term RCP4.5]					
Y ?		TZDACHXA[Near-term RCP4.5]	TZDACIXA[Near-term RCP4.5]	TZDACJXA[Near-term RCP4.5]	TZDACKXA[Near-term RCP4.5]					
	DODOMA	TZDACLXA[Near-term RCP4.5]	TZDACMXA[Near-term RCP4.5]	TZDACNXA[Near-term RCP4.5]	TZDACOXA[Near-term RCP4.5]					
Q	KIGOMA	TZDACPXA[Near-term RCP4.5]	TZDACQXA[Near-term	TZDACRXA[Near-term RCP4.5]	TZDACSXA[Near-term RCP4.5]					
			KCr4.5]	TZDACTXA[Near-term RCP4.5]	TZDAEAXA[Near-term RCP8.5]					
	MANYARA	TZDAEBXA[Near-term RCP8.5]	TZDAECXA[Near-term RCP8.5]	TZDAEDXA[Near-term RCP8.5]	TZDAEEXA[Near-term RCP8.5]					
1	MDEVA	TZDAEFXA[Near-term RCP8.5]	TZDAEGXA[Near-term RCP8.5]	TZDAEHXA[Near-term RCP8.5]	TZDAEIXA[Near-term RCP8.5]					
2	MIDETA	TZDAEJXA[Near-term RCP8.5]	TZDAEKXA[Near-term RCP8.5]	TZDAELXA[Near-term RCP8.5]	TZDAEMXA[Near-term RCP8.5]					
	MOROGORO	TZDAENXA[Near-term RCP8.5]	TZDAEOXA[Near-term RCP8.5]	TZDAEPXA[Near-term RCP8.5]	TZDAEQXA[Near-term RCP8.5]					
=	localhost/model/graph/dashboard/ii	1dex.php?reg=DAR ES SALAAM ^{8.5}]	TZDAESXA[Near-term RCP8.5]	TZDAETXA[Near-term RCP8.5]	TZDAGAXA[Mid-Century RCP4.51					

Figure 12: Choosing station to compare the baseline with the predicted weather conditions



Figure 13: Generated graph for all year 2000, 2030[near-term], 2060[Mid-Century], 2090[End-of-Century]