Climate Change Information Page

- **What does this dashboard relate to?**

  The dashboard relate to Climate Change indicators including changes in temperature, wet spells, dry spells, irrigation demand, potential evaporation, mean annual precipitation and streamflow. The available climate change data used is at quinary scale (i.e. sub-division of the quaternary). However, the maps are delineable into quaternary and water management area levels.

- **What is the main purpose of dashboard?**

  The purpose of the dashboard is to provide show comparison between the current or historic (i.e. 1975-2006) and the immediate future (i.e. 2016-2045) climate scenarios. The dashboard enables the user to depict trends in terms of indicators previously mentioned on graphs and maps thus providing an indication of climatic changes within a particular area of interest.

- **Contact details of person who championed this dashboard**

  Dr Motlole Christopher Moseki,Specialist Scientist, Directorate: Integrated Water Resource Planning

- **Enquiries:**
  - For all dashboard enquiries click **HERE** to go to the Contact Us page.

- **What types of questions does the information product aim to answer?**

  The dashboard aims to answer the following questions:

  - What is the current mean annual precipitation, temperature or potential evaporation in various quinaries within a particular water management area?
  - How are any of these indicators likely to change under projected future climate change? For example how is future rainfall distribution likely to be in the Western Cape compared to the current climatic conditions?
  - Where are the temperature hot spots in a particular WMA and how is climate likely to change in future?
  - Which part of the Limpopo WMA has a favourable outlook in terms of water for food security?

- Data/Information discussion
  - What data is used?

    Data for the 9 indicators as listed below are provided for each quinary catchments in SA to represent climate change projection indicator values.

    - **Rainfall:**

      In excel / csv sheet:
      Mean Annual Precipitation
      Historical = 1950 - 1999. Units = mm per annum
      Percentage change from 1990s to 2030s, is derived from present (1975 - 2006) / immediate future period (2016 - 2045). Unit = %
      Project: This is the historical value x the percentage change to give a future value (2030s)

    - **Streamflow:**

      Mean Annual Streamflow
      Historical = 1950 - 1999. Units = mm per annum
      Percentage change from 1990s to 2030s: Derived from present (1975 - 2006) / immediate future period (2016 - 2045). Unit = %
      Project: This is the historical value x the percentage change to give a future value (2030s)

- **Irrigation:**

  Median Annual Net irrigation requirement
  Historical = 1950 - 1999. Units = mm per annum
  Percentage change from 1990s to 2030s: Derived from present (1975 - 2006) / immediate future period (2016 - 2045). Unit = %
  Project: This is the historical value x the percentage change to give a future value (2030s)

- **Potential evaporation:**

  Difference between mean and median is minimal.
  Median Annual Evaporation: Units = mm per annum.
  Present = 1975 - 2006.
  Percentage change from 1990s to 2030s: Derived from present (1975 - 2006) / immediate future period (2016 - 2045). Unit = %
  Project: This is the historical value x the percentage change to give a future value (2030s)

- **Groundwater recharge:**

  At this point only historical recharge values are available.
  Historical period: 1950 - 1999. Unit = mm per annum

- **Dry spells:**

  Number of occurrences during 3 consecutive months
  There are no historical values for this particular indicator.
  Present period = 1975 - 2006. Units = Average number of occurrences
  Percentage change from 1990s to 2030s is derived from present (1975 - 2006) / immediate future period (2016 - 2045). Unit = %
  Project: This is the present value x the percentage change to give a future value (2030s)

- **Design streamflow:**

  3 day 10 year return period
  There are no CMIP5 values for this particular indicator yet. CMIP3 values were used.
  Historical period = 1950 - 1999. Units = cubic metres (m^3)
  Percentage change from 1980s to 2050s: Derived from present (1971 - 1990) / intermediate future period (2045 - 2065). Unit = %

- How is data extracted from the source?

  The data from the ACRU model is processed and provided once-off in CSV format by the Mr Nicholas Davis from the Isikhungusethu Environmental Services and stored on the NIWIS folder on the N-drive. The static maps are provided in pdf format.

- Data processing in NIWIS

  For each quaternary catchment the values of the second quinary is used to represent the aggregation up to quaternary level

- Key assumptions

  None

- **Links to other sources of related information**

  None

- **Are there any limitations / cautions related to using this information?**

  Yes, please refer to the below:
  The real time data is not verified. One has to be cautious when using the data.

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