

Information on hydrologic modeling experience and forecaster expertise

Brink du Plessis

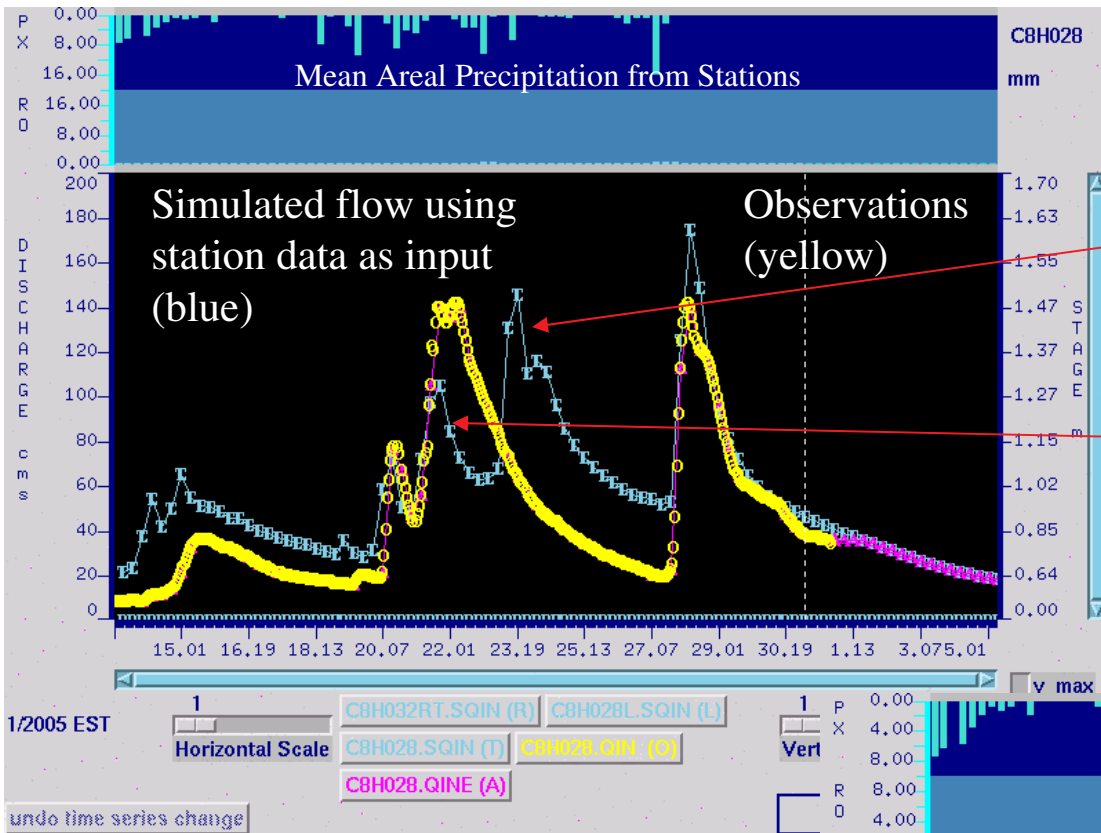
June 2007

Models used for flood management by DWAF

- 1987 Muskingum routing for Vaal Dam (use flow data at 11 gauging to determine inflow to Vaal Dam)
- 1998 Muskingum extended to Vaal/Orange River system
- 1986 Kovacs rainfall/runoff model (Black box model for Vaal Dam – Input: Base flow in river and 18 daily rain gauges; Output: Expected flood volume and time to peak)
- 1996 National Weather Service River Forecast System (NWSRFS) proposal to implement via SAWS
- 1998 NWSRFS routing model for Vaal Dam

Models used for flood management by DWAF (continue)

- 2004 Operational NWSRFS for Vaal/Orange River system with 47 segments (Sacramento soil moisture accounting (SAC-SMA) rainfall/runoff model and Muskingum routing model)
- Used SIMAR rainfall for SAC-SMA model but changed in 2005 to rainfall stations due to accuracy problems with radar data in certain catchments
- 2006 Stop NWSRFS due to lack of personnel and availability of rain data

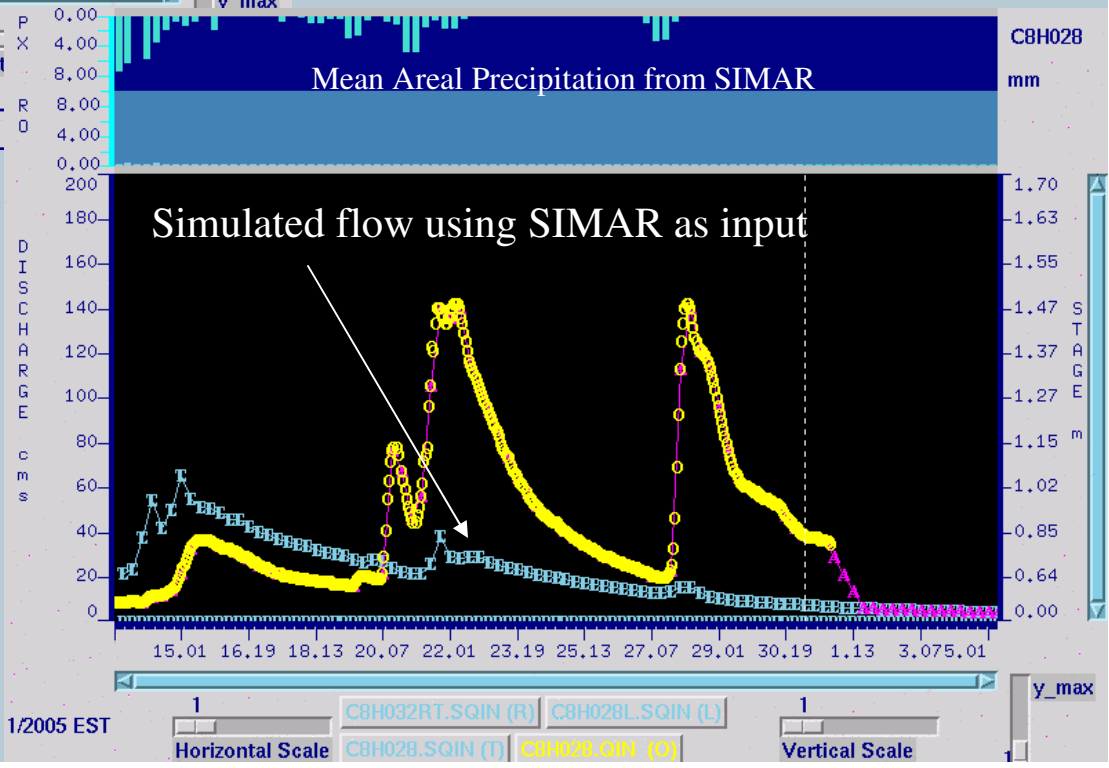
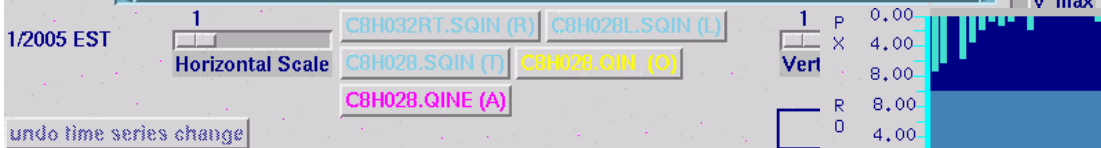


C8H028: 15-31 Jan

Station data also has problems

- ie) Jan 23 no SAWS data available so entire MAP was generated from one station (23mm), when real MAP was probably much lower
- Jan 21-22 precip too low

BUT stations get us closer than SIMAR



Example comparison of resulting MAP values:

Date	Stations	SIMAR
13-Jan	19.2 mm	3.8 mm
14-Jan	21.6 mm	9.1 mm
21-Jan	20.5 mm	11.0 mm
28-Jan	18.7 mm	11.2 mm
20-Feb	29.6 mm	0.4 mm
21-Feb	38.8 mm	1.7 mm

SAWS daily rain gauge data

From	Subject	Received
pearl@weathersa.co.za	RE: Data	Mon 2007/05/07 10:34
pearl@weathersa.co.za	Data	Tue 2007/04/24 11:00
pearl@weathersa.co.za	Data	Tue 2007/04/10 09:44
pearl@weathersa.co.za	Data	Mon 2007/03/19 14:26
pearl@weathersa.co.za	[Fwd: RE: Data]	Tue 2007/03/06 12:19
pearl@weathersa.co.za	Data	Thu 2007/02/15 10:38
pearl@weathersa.co.za	Data	Tue 2007/02/06 10:46
pearl@weathersa.co.za	RE: Data	Fri 2007/01/26 11:30
pearl@weathersa.co.za	Data	Tue 2007/01/16 10:22
pearl@weathersa.co.za	RE: Data	Thu 2007/01/11 11:10
pearl@weathersa.co.za	RE: Data	Thu 2007/01/11 10:28
pearl@weathersa.co.za	RE: Data	Thu 2007/01/11 08:42
pearl@weathersa.co.za	RE: PC broken	Mon 2006/07/03 16:43
pearl@weathersa.co.za	PC broken	Mon 2006/05/15 15:31
pearl@weathersa.co.za	Data	Tue 2006/05/09 16:47

DWAF: "Flood management room"



Thank you

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