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Interactive comment on "Water resources change in response to climate change in Changjiang River basin" *by* Y. Huang et al.

Anonymous Referee #2

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This paper has done a rather extensive research work on the past and future hydro-meteorological conditions over the Changjiang River basin, in order to assess the possible impacts of climate change on the water resources of the Changjiang River basin. The work done in the paper includes four parts: (1) analyze the trends of the historical data of temperature, participation and runoff of Changjiang River basin over the period of 1951-2005; (2) generate the climate scenarios of the future 100 years (2001-2100) over Changjiang River basin, based on the outputs of the 24 GCMs and under the different SRES scenarios; (3) calibrate two simple models for estimating the annual average runoffs of the sub-basins of the Changjiang River basin, and then apply them in predicting the runoffs of the future 100 years (2001-2100) over Changjiang River basin future; (4) analyze the trends of the predicted future series of precipitation, temperature

and runoff.

The research work is self-contained, with a rather complete set of hydro-meteorological data on the Changjiang River basin utilized. However, the English of the paper could be greatly improved.

Specific comments: (1) Equations (1) and (2) combined are just the simple linear regression method. r_xt is called the correlation coefficient, not "the tendency of coefficient".

(2) In simulating the annual average runoff depth of different parts of the Changjiang River basin, both a statistical (nonlinear regression) method and a water balance model are employed. In Table 1, the measures of model efficiency in the calibration period are listed. It is strange that, two models are obviously so different in terms of RMSE, even though they are rather same in terms of both r and R2.

(3) The symbol for runoff had better be kept the same in Equations (4)-(9).

(4) What is the difference between ETa_wb and ETa-b&c?

(5) Reference for equation (11): Pike, J. G.: The estimation of annual runoff from meteorological data in a tropical climate, J. Hydrol., 2, 116–123, 1964.

(6) The writing of the paper could be more streamlined. For instance, in the Abstract (Page 2), the sentence "In turn, drought and flooding problems have been aggravated which has brought new challenges to current hydraulic works such as dike or reservoirs which were designed and constructed based on the historical hydrological characteristics, yet has been significantly changed due to climate change impact" can be reorganized.

(7) There are some grammatical errors in the paper. For instance, in Page 3, "Changjiang (Yangtze) River basin has total catchment area of 18 million km2, and of 6300 km length" has grammatical errors. "Thus, promote effective and efficient water resources management in Changjiang River considering the sensitive impacts is

essential. . .” should be “Thus, to promote. . .is essential. . .”.

(8) There are also a number of spelling errors in the paper. For instance, in Page 3, Lines 13-15, “in 2006 serve water shortage” probably should be “in 2006 severe water shortage”. “south west of Chin” should be “south west of China”; Changjiang Rive” should be “Changjiang River”. Page 9, Line 17, “average tendency rater” should be “average tendency rate”. Page 13, Line 12, “uncertainty courses” probably should be “uncertainty causes”. Page 5, Line 7, the second “impacts” should be deleted. Page 6, Line 23, “characters” should be “characteristics”.

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