

## ***Interactive comment on “Interrelationships between MODIS/Terra remotely sensed snow cover and the hydrometeorology of the Quesnel River Basin, British Columbia, Canada” by J. Tong et al.***

**Anonymous Referee #2**

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This paper presents a method, previously developed by the authors, to reduce cloud cover in the MODIS 8-day standard snow products in the Quesnel River Basin (QRB), BC, Canada. The method uses a spatial filter (SF). They then use their SF method with the MOD10A2 products to model the effects of a 1 deg C rise in average air temperature during the spring, on snowmelt timing. They find that a 1 deg rise in air temperature in spring leads to a 10-day advance in reaching 50% snow-cover fraction in the QRB. The paper presents a reasonable method to reduce cloud cover and a very

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interesting modeling result and I recommend publication in HESS.

Please re-evaluate sections 5.2 and 6.0. It seems to me that some of the material in 5.2 should go in the Results section (6.0).

A few minor comments are provided below.

Section 3.1 – It would be good to also mention that there is a MODIS instrument on the Aqua spacecraft that provides similar products, even though the paper uses only data from the Terra instrument.

Line 20, p. 3691 – Dozier (1989) did not discuss the SNOMAP algorithm which was not developed until the late 1990s.

Line 1, p. 3692 – should say 8-day maximum data on a sinusoidal. . .

Lines 14-15, p. 3692 – please re-phrase; end of sentence is awkward

Line 18, same pg. – perhaps use the word “and” instead of “which”

Line 4, p. 3699 – please re-phrase the following “The percent of cloudy days of MOD10A2. . .” Where did the percent of cloudy days come from?

P. 3699-3700, lines 28 – 1 – shouldn’t this result be in the Results section?

Section 7 – Especially good first paragraph.

Fig. 3 – it is a bit unclear what is being compared. The top image is all cloudy and represents one day. The middle image cannot be MOD10A2 and Jan. 17<sup>th</sup>. Do you mean the 8-day period began on Jan. 17<sup>th</sup>? Ditto for bottom image. Please clarify.

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