

AQRP Monthly Technical Report

PROJECT TITLE	Use of satellite data to improve specifications of land surface parameters	PROJECT # 14-022	14-022
PROJECT PARTICIPANTS	R. McNider, Y. Wu, K.Doty, Pius Lee, Min Huang	DATE SUBMITTED	6/9/2015
REPORTING PERIOD	From: May 1, 2015 To: May 31, 2015	REPORT #	5

A Financial Status Report (FSR) and Invoice will be submitted separately from each of the Project Participants reflecting charges for this Reporting Period. I understand that the FSR and Invoice are due to the AQRP by the 15th of the month following the reporting period shown above.

Detailed Accomplishments by Task

Task 1 Insolation Impacts: Following the report on the insolation impacts we have carried out further comparisons of four insolation products – the WRF product, the GSIP Product and the UAH old product and the new UAH/UW product. While in composite all satellite products compared well to the pyranometer data, we did find remaining slight over-prediction in the Eastern U.S. We had hopes that the new water vapor product would have corrected this bias. The bias may be due to aerosols, in that even in a 20 day minimum brightness to remove clouds and aerosols to obtain a clear sky albedo we may still be picking up aerosols. With this new information we will delay the updated report containing these analyses until later. Note this is not critical to the present project but does have relevance to other activities.

Task 2 Diagnosed Skin Temperature in the WRF Pleim-Xiu Scheme: No further activity this month. The deliverable report on the documentation and implementation of a diagnosed skin temperature in the Pleim-Xiu scheme was delivered April 9, 2015.

Task 3 Evaluation of Satellite Skin Temperature Products: This continues to be the main activity this month. Following the last deliverable report where we identified issues with the GSIP skin temperature product in the Western U.S. we have identified at least two other data sets that can be used. Chris Hain of NOAA has kindly provided process data for the month of September. We made preliminary comparisons of this data set to other data sets and to WRF. This product does not have the high temperatures in the GSIP product. Thus, this will be the data we plan to use in the assimilation.

Identify Problems or Issues Encountered and Proposed Solutions or Adjustments – While the NOAA Hain data appears good in the morning it does not have much data in the afternoon. This will not impact the assimilation work but we had hoped to use the afternoon data for evaluation. We can perhaps use MODIS afternoon (1:30 local time) for evaluation.

Goals and Anticipated Issues for the Succeeding Reporting Period: We see no major obstacles except not having afternoon satellite skin tendencies we will work with NOAA to perhaps provide these.

Detailed Analysis of the Progress of the Task Order to Date

We believe we are on schedule for the project but the issues with skin temperatures means we are not ahead of schedule which would be preferable. Also, one of our key people, Kevin Doty has had hand surgery and will be unavailable for coding work for about two weeks. Thus, we may have to play catch-up when he returns.

Submitted to AQRP by:

Principal Investigator: Richard T. McNider

A handwritten signature in blue ink that reads "Richard T. McNider". The signature is written in a cursive style with a large initial 'R'.