## Audrey Magoun

**From:** "Audrey Magoun" <amagoun@ptialaska.net>
**To:** "Dorothy Hall" <dorothy.k.hall@nasa.gov>
**Sent:** Monday, April 01, 2013 4:33 PM
**Subject:** Re: MODIS guide

Thanks, Dorothy. I think the reason they used V4 was that, even though the paper was published in 2010, they actually began analyzing the data in at least 2007, maybe earlier. In a recent email the lead author stated "It was MODIS Terra version 4 and some version 5 as I recall." When was V5 available? Could it be that it was so recent that they got started on their analysis before it was available? I will try to find out why they used V4. What kind of error would V4 have created, e.g., more pixels or less pixels classified as snow-covered? I know they had to look at the pixels over a 21-day period to try to eliminate cloud cover in order to come up with the snow cover on 15 May for the study area.

----- Original Message -----
From: "Dorothy Hall" <dorothy.k.hall@nasa.gov>
To: "Audrey Magoun" <amagoun@ptialaska.net>
Sent: Monday, April 01, 2013 3:16 PM
Subject: Re: MODIS guide

> Hi Audrey,
>
> I've sent an email to double check on that. I hope to find out sooner
> than Thursday.
>
> The real issue is that a user should *not* be using V4 products. There
> were some issues in V4 that were fixed in V5. I can't remember all of the
> issues, but since V5 is available why would he/she use V4? In fact you
> can't even get V4 anymore. I would suggest to the user to re-do the study
> using V5. In fact I wouldn't accept a paper, as a reviewer, if V4 was
> used. It really doesn't make sense to use an old product when a newer,
> better one is available.
>
> Dorothy
>
>
> On 4/1/2013 6:59 PM, Audrey Magoun wrote:
>> Thursday or even longer will be fine; I'd really appreciate it if you
>> would
>> check
>> thanks
>> ----- Original Message -----
>> From: "Dorothy Hall" <dorothy.k.hall@nasa.gov>
>> To: "Audrey Magoun" <amagoun@ptialaska.net>
>> Sent: Monday, April 01, 2013 2:06 PM
>> Subject: Re: MODIS guide

>>
>>
>>> Hi Audrey,
>>>
>>> Wow, I don't remember, but I don't think so. I don't think V4 had
>>> fractional snow cover. I could find out for sure but I won't be back at
>>> the office until Thursday.
>>>
>>> Dorothy
>>>
>>>
>>> On 4/1/2013 5:01 PM, Audrey Magoun wrote:
>>>> Final question then, just to be absolutely sure I understand, would the
>>>> version used by these authors "MODIS/Terra snow cover daily L3 global
>>>> 500m grid. Version 4, 24 April - 21 May 2000-2006" have included
>>>> fractional snow, as I thought that some snow products don't include
>>>> fractional snow? Thanks again so much.
>>>> ----- Original Message -----
>>>>
>>>> *From:* Dorothy Hall <mailto:Dorothy.K.Hall@nasa.gov>
>>>> *To:* Audrey Magoun <mailto:amagoun@ptialaska.net>
>>>> *Sent:* Monday, April 01, 2013 12:28 PM
>>>> *Subject:* Re: MODIS guide
>>>>
>>>> Hi Audrey,
>>>>
>>>> I think you've got it. Below a fractional snow cover of around
>>>> 20%
>>>> we really aren't certain at all. As you point out, even from 20 -
>>>> 100% it can be iffy, and it's really not possible to validate with
>>>> any accuracy. Sometimes we're measuring snow in trees and that's
>>>> counted. So it's more of a guide than an actual number.
>>>>
>>>> Dorothy
>>>>
>>>>
>>>>
>>>> On 4/1/2013 4:25 PM, Audrey Magoun wrote:
>>>>> Thanks, Dorothy. In the paper I am reviewing, the authors only
>>>>> state that they used the MODIS daily snow data (500 m spatial
>>>>> resolution) from the Terra satellite and they cite Hall et al.
>>>>> 2006--MODIS/Terra snow cover daily L3 global 500m grid. Version
>>>>> 4,
>>>>> 24 April - 21 May 2000-2006. This is for the Northern Hemisphere
>>>>> as the paper is about wolverines (attached). I read through the
>>>>> guide quickly but I still am trying to determine how accurate
>>>>> this
>>>>> snow cover data would be in detecting snow, in this case, if
>>>>> snowmelt had progressed far enough that snow occurred only in
>>>>> patches, both in mountains and in the flatter boreal forest of
>>>>> Canada. The pixels were classified as snow, bare ground, cloud,

>>>>> or
>>>>> night. Specifically, I'm trying to determine what really is in a
>>>>> pixel classified as snow vs. bare ground. Would the specific snow
>>>>> product they used classify fractional snow of less than 20% as
>>>>> bare ground and pixels with >20% classified as snow-covered? Or
>>>>> would the authors have had the % of fractional snow from 0-100%
>>>>> available to them and they then made the determination of
>>>>> snow-covered or bare themselves? And would these authors have
>>>>> even
>>>>> used the fractional snow product given the description above? (I
>>>>> am trying to find out from them what snow product they used but
>>>>> haven't heard back yet.) From your email below, it appears that
>>>>> with up to 20% of fractional snow in a pixel, which then may have
>>>>> been classified as bare, the authors might not have had
>>>>> information on snowbeds that occurred in those pixels, is that
>>>>> correct? And would it matter, for example, if there was only one
>>>>> snowbed in the pixel that covered about 15% of the pixel vs 3
>>>>> smaller snowbeds separated by bare ground? Also, I've been
>>>>> reading
>>>>> the literature on fractional snow and it appears there are still
>>>>> problems with classifying it, say in mountains vs. boreal forest.
>>>>> Would that have been true for the data these authors used?
>>>>> Thanks so much and I hope you don't mind my questions.
>>>>> Audrey
>>>>> ----- Original Message -----
>>>>>
>>>>> *From:* Dorothy Hall <mailto:Dorothy.K.Hall@nasa.gov>
>>>>> *To:* Audrey Magoun <mailto:amagoun@ptialaska.net>
>>>>> *Sent:* Monday, April 01, 2013 11:45 AM
>>>>> *Subject:* Re: MODIS guide
>>>>>
>>>>> Hi Audrey,
>>>>>
>>>>> Yes, it's the most recent but George Riggs is updating it now
>>>>> for Collection 6. It won't be done for a few months. Some
>>>>> things have changed, but it's still pretty accurate for
>>>>> Collection 5. Let me know if you have any specific
>>>>> questions.
>>>>>
>>>>> Dorothy
>>>>>
>>>>>
>>>>>
>>>>> On 4/1/2013 3:20 PM, Audrey Magoun wrote:
>>>>>>> Hi Dorothy
>>>>>>> One more question for you--is the MODIS Snow Products User
>>>>>>> Guide to Collection 5 by George A. Riggs, Dorothy K. Hall,
>>>>>>> Vincent V. Salomonson, November 2006 the most current guide
>>>>>>> and would it be the best explanation of MODIS Snow Products
>>>>>>> used for 2000-2007 ?
>>>>>>> Thanks so much for your time.

>>>>>> Audrey
>>>>>> ----- Original Message -----
>>>>>>
>>>>>> *From:* Dorothy Hall <mailto:Dorothy.K.Hall@nasa.gov>
>>>>>> *To:* Audrey Magoun <mailto:amagoun@ptialaska.net>
>>>>>> *Sent:* Monday, April 01, 2013 4:07 AM
>>>>>> *Subject:* Re: MODIS resolution and ability to detect
>>>>>> snow patches at the 500 m resolution
>>>>>>
>>>>>> Hi Audrey,
>>>>>>
>>>>>> I am really sorry but I missed your email. This morning
>>>>>> I was going through old emails in my inbox and
>>>>>> discovered
>>>>>> this. I hope it's not too late.
>>>>>>
>>>>>> When the fractional snow cover (which is provided as
>>>>>> part
>>>>>> of the product) gets to less than 20%, I think you can
>>>>>> safely say that the pixel is largely "bare." I hope
>>>>>> this
>>>>>> is helpful.
>>>>>>
>>>>>> Dorothy
>>>>>>
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>>>>>>
>>>>>> On 3/25/2013 9:06 PM, Audrey Magoun wrote:
>>>>>>>>> Hello Dorothy
>>>>>>>>> I am reviewing a paper that used MODIS snow cover data
>>>>>>>>> to determine the snow cover (globally) in the northern
>>>>>>>>> hemisphere in the years 2000-2006 for the period 24
>>>>>>>>> April to 15 May for the purpose of evaluating the
>>>>>>>>> extent
>>>>>>>>> of wolverine denning habitat. During this period, some
>>>>>>>>> areas are beginning to melt and snow becomes patchy.
>>>>>>>>> What I am hoping you can tell me is at what point will
>>>>>>>>> the MODIS data show a pixel as "bare" even if it has
>>>>>>>>> snow patches distributed across the pixel? What
>>>>>>>>> distribution, size, and perhaps shape of snow patches
>>>>>>>>> would still produce a pixel that was considered "bare"
>>>>>>>>> even though some snow is present? I have not used MODIS
>>>>>>>>> data myself so I am not familiar with the process for
>>>>>>>>> determining bare vs. snow-covered.
>>>>>>>>> Thank you so much for considering this request.
>>>>>>>>> Audrey Magoun
>>>>>>>>> Wildlife Biologist
>>>>>>
>>>>>> --
>>>>>> Dorothy K. Hall
>>>>>> Cryospheric Sciences Laboratory

>>>>>> Code 615
>>>>>> NASA Goddard Space Flight Center
>>>>>> Greenbelt, MD 20771
>>>>>> USA
>>>>>>
>>>>>> dorothy.k.hall@nasa.gov
>>>>>> Phone: 301-614-5771
>>>>>>
>>>>>> No virus found in this message.
>>>>>> Checked by AVG - www.avg.com <http://www.avg.com>
>>>>>> Version: 2013.0.3267 / Virus Database: 3161/6218 -
>>>>>> Release Date: 04/01/13
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