

1528117936-49967-16911-176-234

From: "Roger N. Clark" <rclark@usgs.gov>  
Sent: Thu, 02 Sep 2010 14:42:06  
To: FOIA0105@usgs.gov  
Subject: [Fwd: Re: Imaging Spectroscopy for oil]

----- Original Message -----

Subject: Re: Imaging Spectroscopy for oil  
Date: Thu, 27 May 2010 06:28:43 -0600  
From: Gregg A Swayze <gswayze@usgs.gov>  
To: Matthew Fladeland <matthew.m.fladeland@nasa.gov>  
CC: rclark@speclab.cr.usgs.gov <rclark@speclab.cr.usgs.gov>, Fladeland,  
Matthew M. (ARC-SG) <matthew.fladeland@nasa.gov>, rclark@usgs.gov  
<rclark@usgs.gov>  
References: <201005252159.o4PLxSXo005456@speclab1.cr.usgs.gov>,  
<4BFD84A0.4010405@nasa.gov>

Hi Matt,

Roger did a good job outlining what we need in terms of spectrometer requirements. In addition to these, we found the flexibility to collect spectral data at different times of the day critical. For instance, cloud cover along the Gulf Coast usually dissipates after local solar noon. We learned that data collected after that time combined with a flight direction into the sun (versatility in flight line direction) were critical to maximizing open sky and minimizing sun glint. Having a system available for data collection every day was also critical because weather conditions had to be just right (i.e., calm water with wave heights no greater than 1-2 ft and clear skies). These two weather conditions don't happen every day along the Gulf Coast so data collection in sync with the weather patterns was critical.

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Having an instrument that could also measure in the UV would make the search for crude oil (very dark spectrally) easier because of its fluorescence in that wavelength range. I think the fluorescence peaks are around 0.35 microns in crude oil (varies according to the type of crude). AVIRIS cuts off just shy of this wavelength at about 0.38um. Not as big a deal as the requirements Roger provided and those listed above.

Hope this helps,

Gregg

-----Matthew Fladeland <matthew.m.fladeland@nasa.gov> wrote: -----

To: "rclark@speclab.cr.usgs.gov" <rclark@speclab.cr.usgs.gov>  
From: Matthew Fladeland <matthew.m.fladeland@nasa.gov>  
Date: 05/26/2010 02:29PM  
cc: "Fladeland, Matthew M. (ARC-SG)" <matthew.fladeland@nasa.gov>,  
"rclark@usgs.gov" <rclark@usgs.gov>, "gswayze@usgs.gov"  
<gswayze@usgs.gov>  
Subject: Re: Imaging Spectroscopy for oil

Thanks for your prompt response. This is very helpful. There may be follow-up after a telecon tomorrow morning.

Best regards,

Matt

Roger N. Clark wrote:

> Fladeland, Matthew M. (ARC-SG) wrote:

>

>> Roger:

>>

>> I've been asked by NASA HQ to provide advise on additional  
airborne imaging

>>

> spectrometers to the oil response community in lieu of AVIRIS.

>

>> I understand from John Brock that you are using AVIRIS and so  
hoped you could

>>

> let me know the wavelengths of interest, S:N tolerance at  
spectral regions of

> interest, and desired spatial resolution. If you have particular  
systems you'd

> like us to include please also include in your response.

>

>> Feel free to call my cell below if you prefer.

>>

>> Best regards,

>>

>> Matt

>>

>

> Hello Matt,

>

> I am currently in Italy, so if there are follow-up questions, please

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> contact Gregg Swayze.

>

> To do the oil work a very high S/N imaging spectrometer is needed.

>

> AVIRIS is on the edge of doing it S/N wise. We also need better than

> 12 nm FWHM with better than 12 nm sampling and a range from 0.6 to

> 2.46 microns (and 2.4+ microns still needs good response).

> Hyperion falls way short. We also need better than 10 meters/pixel

> surface sampling. Off nadir angle must be minimized (12 degrees of

> AVIRIS is OK but sometimes we run into sun glint problems). A sensor

> with a wider off-nadir angle would suffer more from sun glint.

>

> Gregg can probably add to the list; its after midnight here.

>

> Roger

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