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Matthew Meselson <msmeselson@gmail.com>

Re: LIDAR

6 messages

Matthew S. Meselson <msm@wjh.harvard.edu> **Sun, Jul 6, 2008 at 8:25 AM**
To: Richard DANZIG <RJDanzig@aol.com>
Cc: "Matthew S. Meselson" <msm@wjh.harvard.edu>

Dear Richard,

All my copies of the NRC report are drafts. I will ask that a final version be sent to you.

Tim Dasey writes that DHS is not allowing him to release his LIDAR report. I have just replied to him that perhaps it could be released to me through the NAS, where I hold TS clearance and various tickets.

I believe that the hypothetical attack I outline below falls into the category of attacks with which we should be concerned and that the considerations I outline also apply to much larger attacks.

Unless there are very major developments in LIDAR technology of which I am not aware, I am concerned that very consequential aerosol attacks could be missed by LIDAR. I would be glad to be shown wrong but without knowing the contrary analysis I can only continue to believe that major attacks could escape LIDAR detection. A problem I have sometimes encountered is that of designing the hypothetical attack to fit the detection scenario rather than the other way around.

I wish that my true military and defense orientation were famous. Then I could be more helpful to Obama! Let me know if there is any way I can help get our country onto the path that will avoid or at least minimize some of the looming security, envoronmental, fiscal, political, and cultural perils.

As ever,

Matt

Matthew Meselson
Department of Molecular and Cellular Biology
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telephone: (617) 495-2264
telefax: (617) 496-2444

On Sat, 14 Jun 2008 RJDanzig@aol.com wrote:

Date: Sat, 14 Jun 2008 10:57:22 EDT
From: RJDanzig@aol.com
To: msm@wjh.harvard.edu
Subject: Re: Sorry to miss your Sloan briefing

Matt,

I am sorry I won't be able to have the benefit of seeing you at Sloan but we will find another time.

Substantial technical analysis was done at Lincoln Labs on cloud detection by lidar. They found, somewhat to their surprise, that the lidar met that technical criterion as measured by the anthrax scenario of choice. Of course, there are attacks that are too small, dispersed, or use agents with such low LD50s that this detection mechanism (or most any mechanism) is not helpful. But it is helpful against the main aerosol attacks of concern.

If you are interested, you might contact Tim Dasey _timd@ll.mit.edu_ (mailto:timd@ll.mit.edu) and transcend the intervening 12 miles to hear what they did and concluded.

Could you send me the full NAS report?

Thanks and best to Jeanne as well as you.

Richard

In a message dated 6/14/2008 8:29:18 A.M. Eastern Daylight Time, msm@wjh.harvard.edu writes:

Dear Richard,

I had wanted to hear your breifing at the Sloan Foundation on the 25th and have tried to rearrange things here so as to be able to do so, but to no avail.

It is good to know that you are helping the candidacy of Barak Obama. His election could significantly dampen the motivation of some categories of potential terrorists to strike at America. Now that he is the Democratic nominee, Jeanne and I will be contributing to his campaign.

I recently served as "monitor" on an NAS/NRC report about testing the performance of systems for remote detection of pathogenic aerosols, mainly LIDAR, and thought you might like to see a summary of what I wrote about detection criteria.

With all good wishes and hoping that it is not too long before I see you again,

Matt

DETECTION CRITERIA FOR LIDAR

One cannot usefully discuss the utility of LIDAR and related systems for remote detection of pathogen aerosol clouds without some idea of the system's limit of detection. The guiding consideration here is to detect aerosol clouds that could infect substantial numbers of people and, preferably, to do so in time for physical protective measures to be instituted. What detection limits might be needed for this purpose?

An instructive example may be seen in the requirement for detection of an aerosol cloud of Franciscella tularensis, an agent extensively studied and weaponized under the former US offensive BW program. Controlled experimental exposure of human volunteers (given antibiotics upon signs of infection and thereby protected), showed that the number of viable organisms inhaled per person required to infect half of an exposed population of healthy men is 10-20 cells or perhaps somewhat fewer. What matters is the total number of infective organisms inhaled over the period of exposure. Men engaged in moderate activity, such as walking, inhale about 30 liters per minute and men at rest inhale about 10 liters per minute. Even an essentially instantaneous release will be spread out along-wind by the time it reaches a remote target. Moreover, an attacker can release the aerosol slowly, over a period of hours, thereby delivering a given dose from an extremely dilute aerosol. For example, an aerosol cloud of F. tularensis uniformly released along a line source over a period of an hour with a concentration nowhere greater than one infective organism per 50 liters could represent a grave threat to unprotected people downwind. Even if we assume that 90 percent of the aerosol is made up of non-infective organisms and other material and ignore the serious problem of distinguishing the pathogen from other aerosol particles present in the natural background, this is far below the detection limit of any form of LIDAR I know.

Matthew Meselson <msmeselson@gmail.com> **Sun, Jul 6, 2008 at 10:13 AM**
To: Jeanne Guillemin <guilleje@bc.edu>

[Quoted text hidden]

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Matthew Meselson
Department of Molecular and Cellular Biology
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Dasey, Timothy <timd@ll.mit.edu> **Sun, Jul 6, 2008 at 9:39 PM**
To: "Matthew S. Meselson" <msm@wjh.harvard.edu>
Cc: Richard DANZIG <RJDanzig@aol.com>

Maybe. It's up to DHS. I'll check. Tim

-----Original Message-----
From: Matthew S. Meselson [mailto:msm@wjh.harvard.edu]
Sent: Sunday, July 06, 2008 8:28 AM
To: Dasey, Timothy
Cc: Richard DANZIG
Subject: RE: LIDAR

Dear Tim,

What about releasing the report to me through the NAS where I hold TS clearance?

Matt

Matthew Meselson
Department of Molecular and Cellular Biology
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On Mon, 16 Jun 2008, Dasey, Timothy wrote:

Date: Mon, 16 Jun 2008 16:30:15 -0400
From: "Dasey, Timothy" <timd@ll.mit.edu>
To: Matthew Meselson <msm@wjh.harvard.edu>
Subject: RE: LIDAR

Matthew,

I regret to say that DHS is not allowing me to release that study. My apology for the roadblock.

Tim

-----Original Message-----
From: Matthew Meselson [mailto:msm@wjh.harvard.edu]
Sent: Saturday, June 14, 2008 7:26 PM
To: Dasey, Timothy
Subject: LIDAR

Dear Dr. Dasey,

My friend Richard Danzig has told me that you have done an interesting analysis of the utililty of LIDAR-based systems for remote detection of biological aerosols. Would it be possible to send me a copy of your study?

Sincerely,

Matthew Meselson

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Dasey, Timothy <timd@ll.mit.edu> **Mon, Jul 21, 2008 at 11:44 PM**
To: "Matthew S. Meselson" <msm@wjh.harvard.edu>

Matt,

I'm so sorry about the delay. At this point I can't remember whether I've already responded!

As long as our security verifies your clearance we can send the report directly to you. The easiest way to do this is through a visit request. Yes, I know you're not visiting, but it is the way that security is used to evaluating clearance information, and we're best off not confusing them.

To send a visit request via JPAS our SMO code is 3G050

To send it through regular channels then it would need to go to:
Attn: Security
244 Wood Street,
Lexington, MA 02420-9185
Telephone # 781-981-7118
Fax # 781-981-5588

202 334 2107

Let me know if I can be of assistance.
[Quoted text hidden]

Matthew Meselson <msmeselson@gmail.com> **Wed, Jul 23, 2008 at 12:16 PM**
To: "Dasey, Timothy" <timd@ll.mit.edu>

JPAS
SMO Code
360506

Thanks Tim,

I called 781-981-5588 and was told that the SMO code we should use is 360506 rather than 36050. Before I ask the NAS Security Office to forward my clearances through JPAS, let me know which SMO code I should give them. Also, they may also want to know the classification level of the report. Can you let me know what it is?

Thanks for all the trouble. Perhaps after I have read the report we could get together sometime in Cambridge or at Lincoln Lab.

Matt
[Quoted text hidden]

B Dshorter @ nas.edu
Betsy

--
Matthew Meselson
Department of Molecular and Cellular Biology
Harvard University
[Quoted text hidden]

Please to visit Ly Lab
SMO

Dasey, Timothy <timd@ll.mit.edu> **Wed, Jul 23, 2008 at 1:25 PM**
To: "msmeselson@gmail.com" <msmeselson@gmail.com>

Go with what our security office told you. I probably copied down the number incorrectly.

The report (actually it's a set of Powerpoint charts) is not actually classified - it is "For Official Use Only". It's

just that DHS wants us to only send it to people who have clearances, so we just need to verify that you have one and then we can send it to you via normal postal mail.

Tim

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