

# IMO Fireball reporting system

**MIKE HANKEY & VINCENT PERLERIN**

American Meteor Society & IMO

IMC 2014, Giron, France



## Report a Fireball: it's fun and easy!

**You saw something bright and fast? Like a huge shooting star? Report it: it may be a fireball.**

We are going to ask you to fill an interactive form that is intended to be easy to fill out for anyone. Please, be as precise as you can. Your report is important, it alerts us to potentially scientifically significant events that occur, and contributes to the general database of knowledge about meteors. You will have the opportunity to give us all the details about your sighting experience at the end of the form.

- **Please, don't report sighting that lasted more than 30 seconds:** the vast majority of fireballs are only visible for few seconds.
- **Please, don't report recurring events:** seeing a fireball is extremely rare and often an once in a lifetime event.
- **Please, don't report slow blinking objects or lights crossing the sky going by 2 or 3:** a fireball looks like a big shooting star.

Start your report



If you are having a problem getting the fireball report app to work, please [use our simple form](#) to file your report.



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### In what direction did you **FIRST** see the fireball?

Click in the direction you **FIRST** saw the fireball. Zoom in/out for greater accuracy.

Alternatively, you may enter the directional viewing angle  degree



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### How far above the horizon was it when it first appeared?

Please, drag up and down the green line below. [Need Help?](#)

Alternatively, you may enter the initial elevation angle  degree

90°

STRAIGHT UP

AMS! > Events in 2013 > #2765

AMS received 219 reports about this fireball seen over AZ, BC, CA, NV and UT on November 7th 2013 around 03:51 (UTC).

DELAYED SOUND: 4 yes 174 no  
CONCURRENT SOUND: 12 yes 176 no

219 reports

- #2765aa - Chris B. Level: 1
- #2765ab - John B. Level: 3
- #2765ac - Bryce O. Level: 3
- #2765ad - Venessa N. incomplete Level: 3
- #2765ae - Kenia J. Level: 1
- #2765af - Jason A. Level: 1
- #2765ag - Rob M. Level: 4
- #2765ah - Richard P. Level: 2
- #2765ai - Covell C. incomplete Level: 2
- #2765aj - Karan M. Level: 1

0 Likes, 0 +1s, 0 Tweets

[Add Info to this Event](#)

2 Video

Mappable Reports - All Expertise - All Obs. Dir. - All Sound Exp.

Types Options Map

United States

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2 Video

Report a Fireball Browse Fireball Reports Browse AMS Events Log In Register

Mappable Reports - All Expertise - All Obs. Dir. - All Sound Exp.

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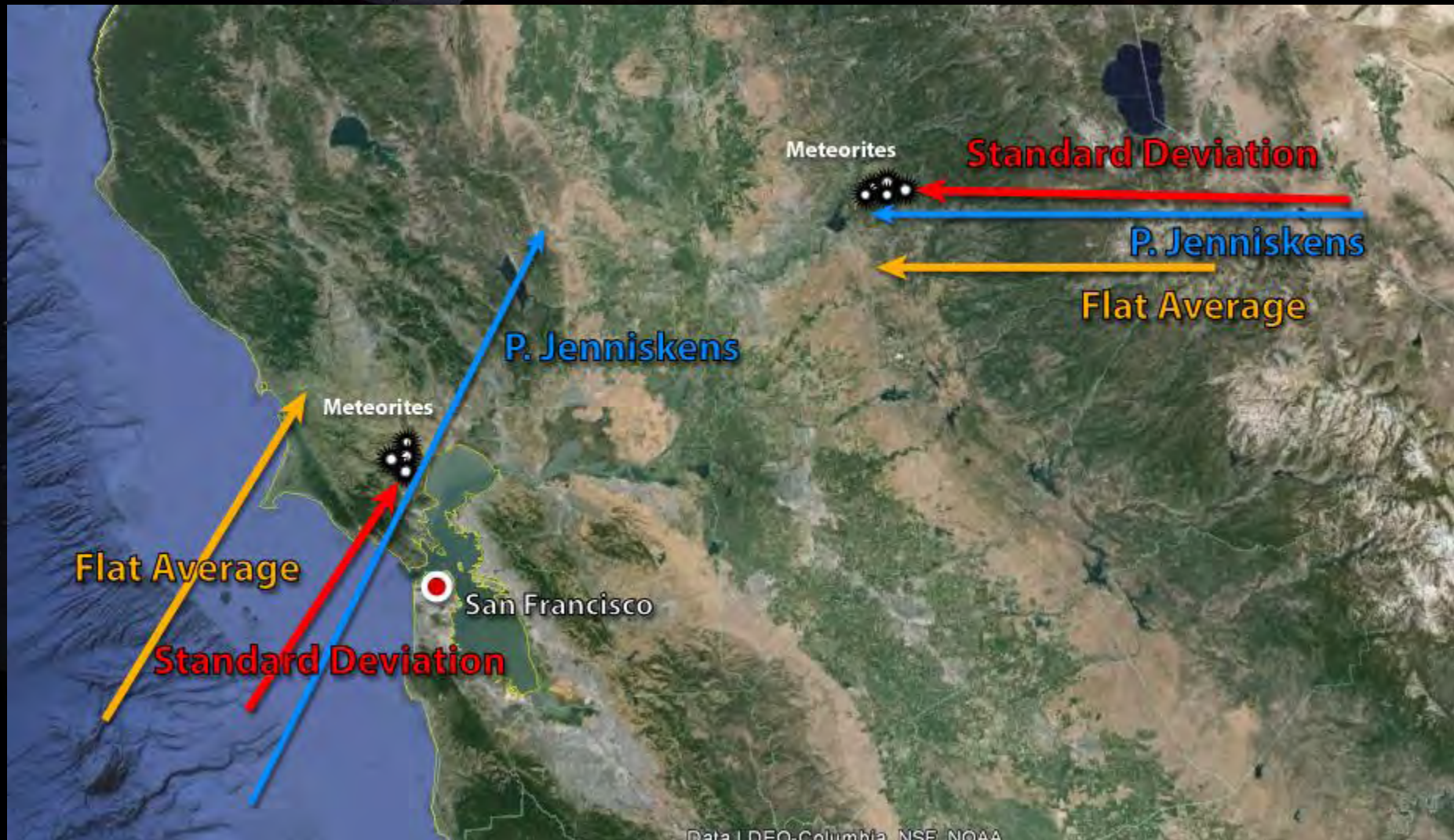
0 Likes, 0 +1s, 0 Tweets

[Add Info to this Event](#)

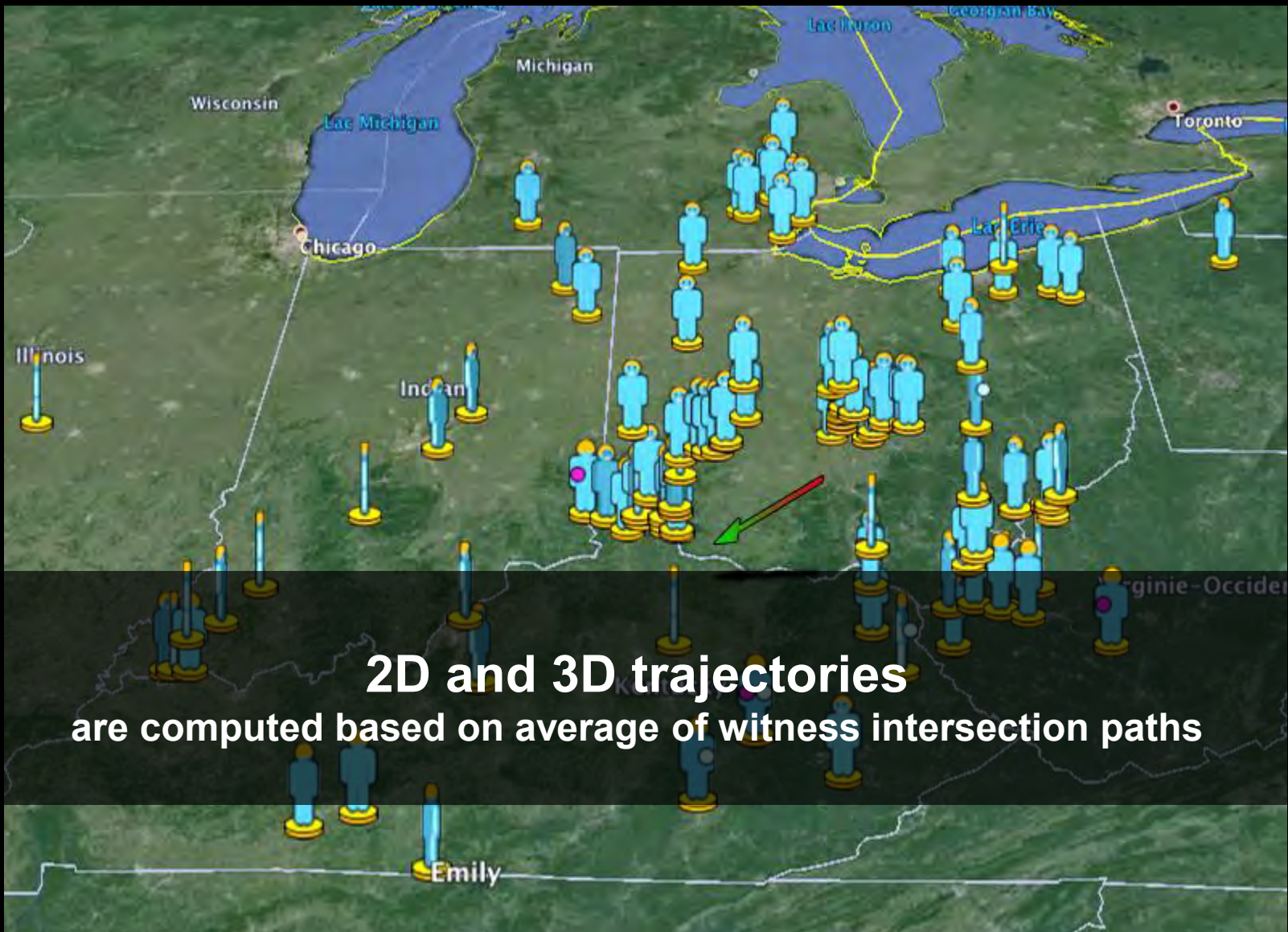
2 Video



# Sutters Mill & Novato Meteorite Recoveries







**2D and 3D trajectories**  
are computed based on average of witness intersection paths





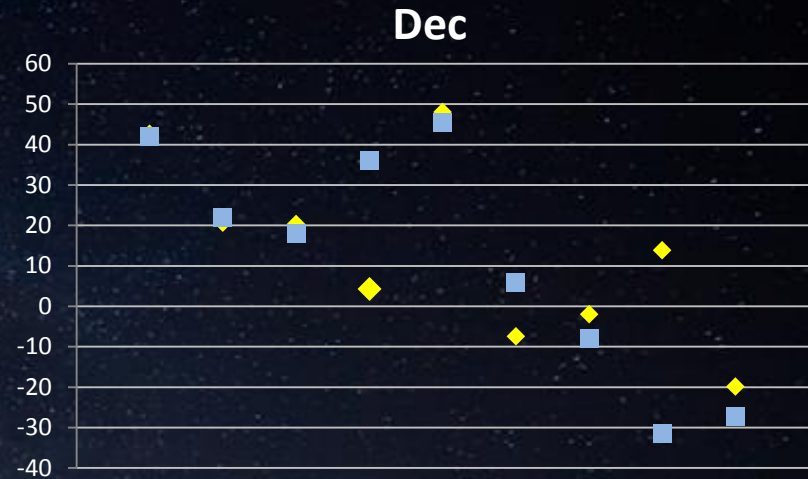
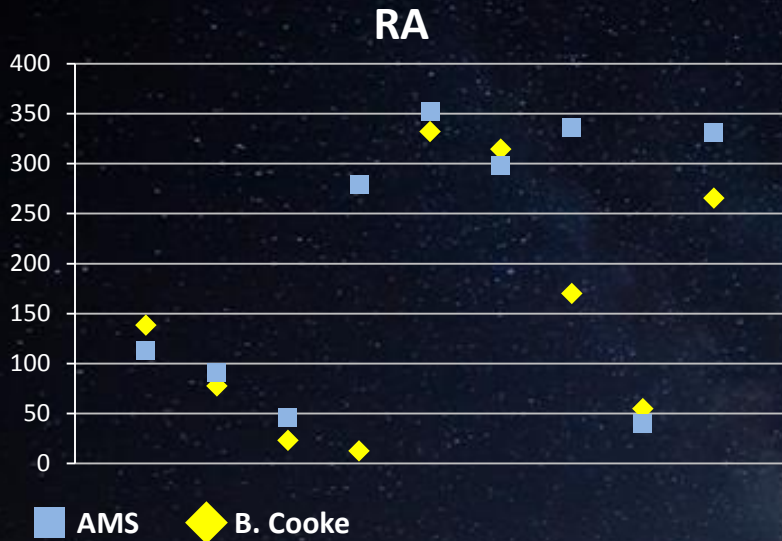
**382 trajectories estimated since 2011**

© 2014 Google  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
© 2009 GeoBasis-DE/BKG  
US Dept of State Geographer

Google earth



# RA/Dec EVALUATION



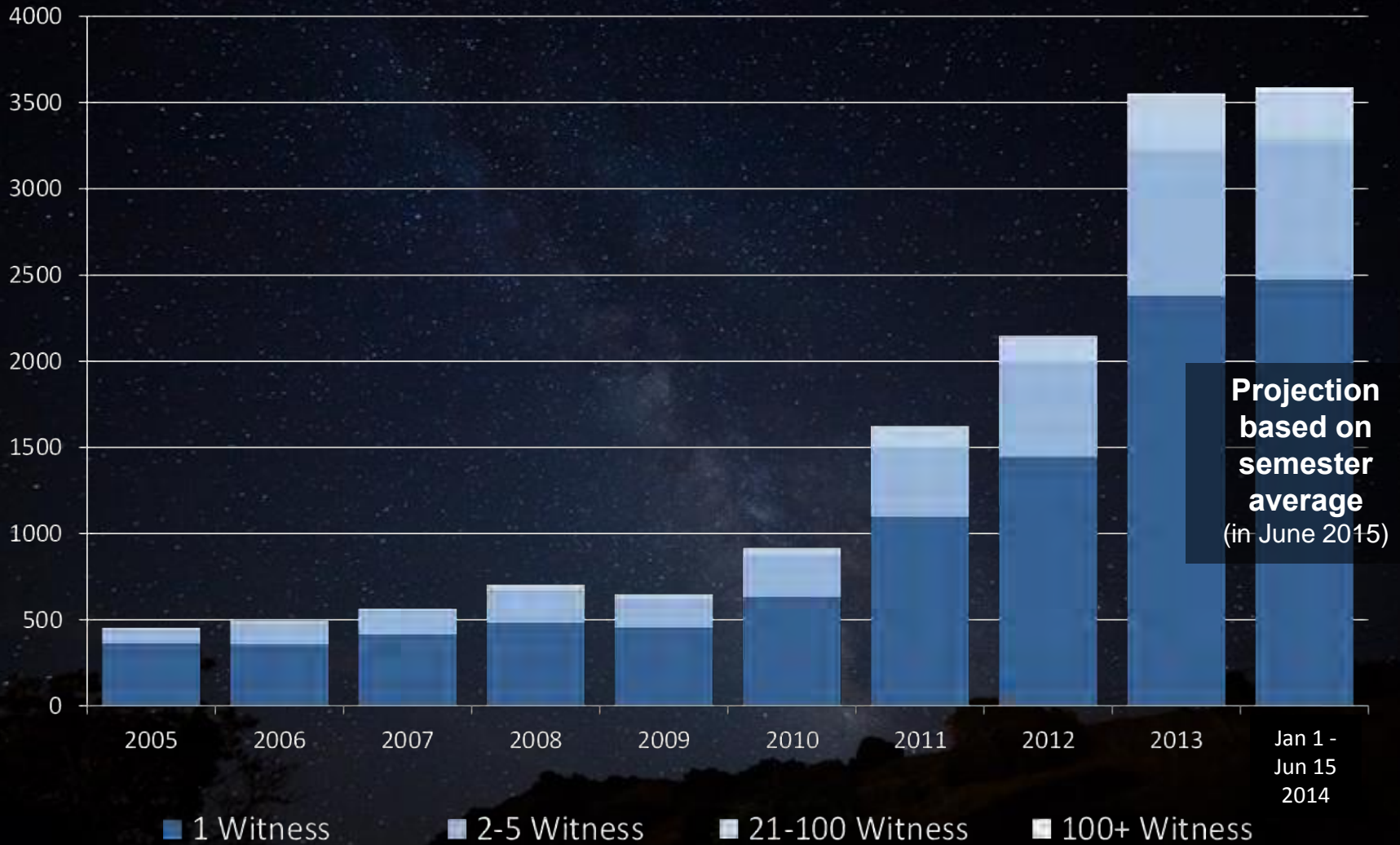
## COMPARISON BETWEEN 9 EVENTS FROM 2012 TO 2014

Event	RA Diff.	Dec Diff.
2012a	18.41%	8.22%
2012b	3.93%	50.31%
2013a	46.11%	6.78%
2013b	4.41%	14.86%
2013c	5.58%	2.87%
2013d	73.95%	35.10%
2013e	6.34%	2.67%
2013f	3.64%	1.31%

5/9 RA Diff. < 8%  
5/9 Dec Diff. < 8%



# EVENTS PER YEAR SINCE 2005



More than 1,760,000 visits on the site      12,651 events\*      47,060 reports

\* 2,228 with more than 2 reports and 482 with more than 10 reports

العربية – Arabic

български език – Bulgarian

čeština – Czech

Dansk – Danish

Deutsch – German

English – English

Español – Spanish

français – French

עברית – Hebrew

hrvatski – Croatian

日本語 – Japanese

lietuvių kalba – Lithuanian

Norsk bokmål – Norwegian

Nederlands – Dutch

język polski – Polish

Português brasileiro – Brazilian P.

Português – Portuguese

Română – Romanian

русский язык – Russian

Slovensky – Slovakian

slovenščina – Slovenian

Svenska – Swedish

Türkçe – Turkishy

українська мова – Ukrainian

简体中文 - Simp. Chinese

正體中文 - Trad. Chinese



26 languages

and more to come... (sorry Snežana!!)



## الإبلاغ عن فايربول: انها متعة وسهولة!

### رأيت شيء مشرق وسريع؟ مثل نجم اطلاق النار ضخمة؟ الإبلاغ عن ذلك: قد يكون كرة من اللهب.

نحن بصدد الطلب منك ملء استمارة التفاعلي الذي يهدف إلى أن يكون من السهل ملء لأحد من فضلك، كن دقيقا قدر المستطاع. التقرير الخاص بك هو المهم، فإنه يثبتنا إلى أحداث كبيرة محتملة علميا أن تحدث، ويسهم في قاعدة البيانات العامة للمعرفة حول الشهب. سيكون لديك الفرصة لتعطيلنا كل التفاصيل حول تجربة الرؤية الخاص بك في نهاية النموذج.

- من فضلك، لا تقدم تقريرا رؤية دامت أكثر من 30 ثانية: الغالبية العظمى من الكرات النارية ليست سوى ليضع توان مرئية.
- من فضلك، لا تقرر الأحداث المتكررة: من فضلك، لا تقرر بيضاء وامض الأشياء أو أضواء عبور السماء الذهاب بنسبة 2 أو 3:
- من فضلك، لا تقرر بيضاء وامض الأشياء أو أضواء عبور السماء الذهاب بنسبة 2 أو 3: كرة نارية تبدو وكأنها نجمة الرماية كبيرة.

★ تبدأ الآن



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## Hvor så du ildkuglen?

Indtast en adresse så tæt som muligt på hvor du så ildkuglen Jo mere præcis du er, jo mere værdifuld bliver din rapport. [Har du brug for hjælp?](#)

København, Danmark

Breddegrad: 55.67610° - Længdegrad: 12.56834° - Højde: 6.3m



Fortsæt ➔



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## Quando vio el bólido?

La fecha en la que vio el bólido

septiembre

21

2014

Hora local a la que vio en bólido

02

Min.

Cambiar al formato de 12 horas (AM/PM)

¿Cuánto duró?

Seleccione la duración

← Atrás

Continúe →

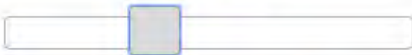
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## Où ce bolide est-il allé ?

Faites glisser le curseur ci-dessous pour sélectionner l'angle de descente du bolide.  
Vous pouvez aussi entrer un angle de descente :

degré(s)

Annuler



◀ Revenir

Continuer ▶



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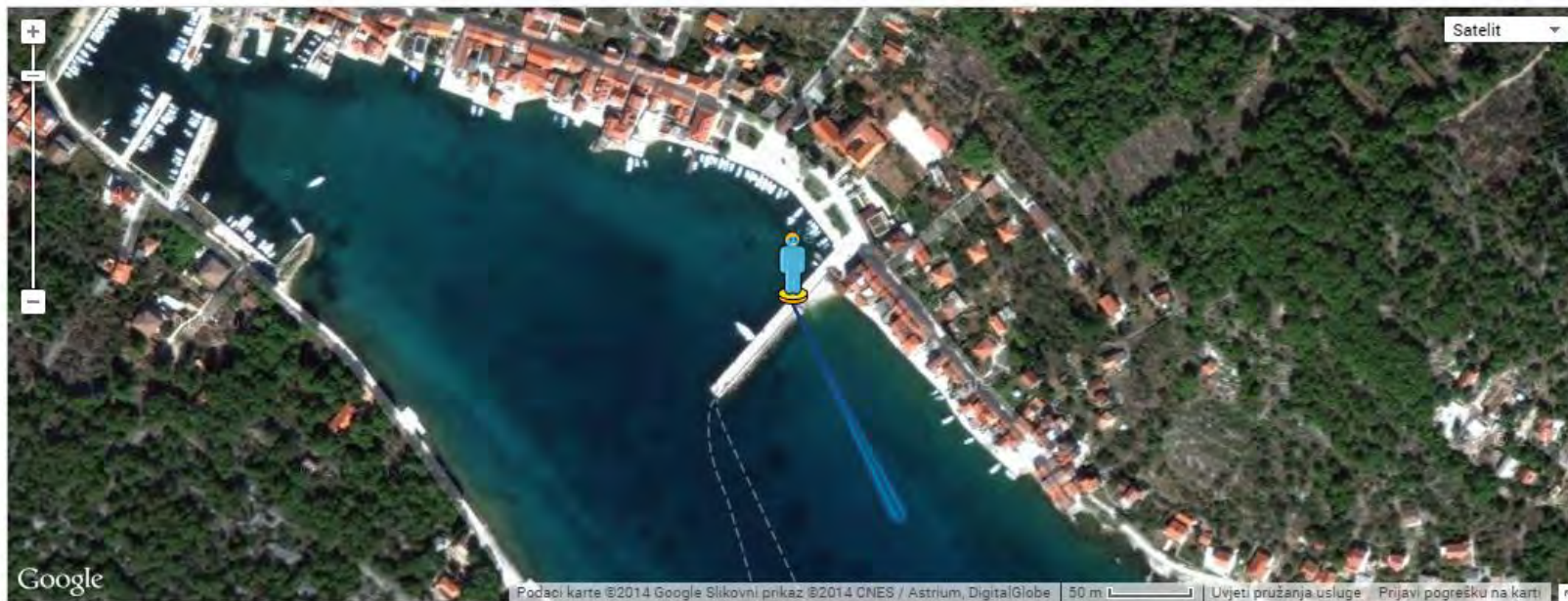
## U što ste gledali?

Klinite na smjer u kojem ste gledali kada ste uočili vatrenu kuglu. Približite/udaljite zbog veće preciznosti. [Trebate pomoć?](#)  
Alternativno, možete upisati smjer opažačkog kuta.

153.28

kut

Reset



↶ Natrag

Nastavite ↷

5/12

## Jak vysoko byl nad obzorem, když se POPRVÉ objevil?

Prosím, uct  
Případně m

### Jak byl vysoko nad obzorem, když se poprvé objevil?

Nebojte se odhadovat výšku bolidu nad obzorem (je to téměř nemožné). Je ale velice důležité, abyste nám poskytli odhad výšky místa nad horizontem, kde jste ho poprvé spatřili.

My použijeme váš úhel a úhly získané od jiných svědků. Tak budeme moci pomocí triangulace určit polohu a výšku bolidu.





事件 2014 > 1484-2014

KML

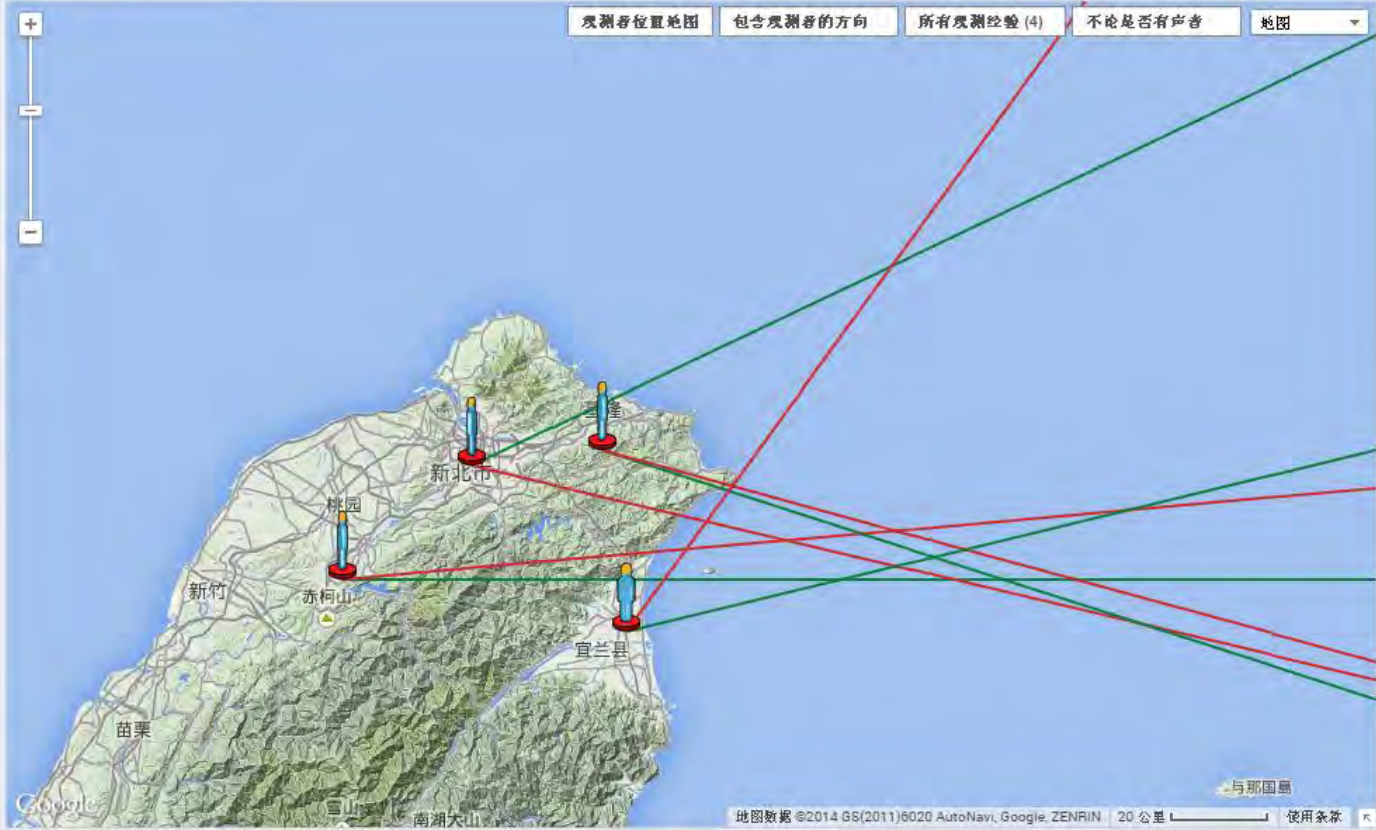
国际流星组织(IMO)接收到4份关于火流星的报告于New Taipei City 在 星期三 13 八月 2014 - 13:00 UT。

延迟声音 1 否 同步声音 1 否 碎片 1 否

g+1 0 Tweet 0 Like 0

4 报告

- a - 嘉誠 观测经验 2
- b - 灣 观测经验 4
- c - 海海 观测经验 3
- d - 竇竇 观测经验 2



编号	国际标准时间(UT) 日期 & 时间	当地时间 日期 & 时间	城市	州	持续时间	亮度	延迟声音	同步声音	碎片	观测者	观测经验
a	2014.08.13 13:03 UT	2014.08.13 21:03 CST	龍潭鄉		≈1.5s	-4	-	-	-	嘉誠	2
b	2014.08.13 13:00 UT	2014.08.13 21:00 CST		New Taipei City	<1s	-12	?	?	?	灣	4

Pending Reports

0 - 50 of 242



Pagination

ID	UT Date & Time	Local Date & Time	Location	Dur.	Magn.	D.S.	C.S.	Frag.	Observer	★	
<input type="checkbox"/> 47894	2014-08-19 19:32 UT	2014-08-19 23:32 MSK	Таруса, Калужская область 54.71°, 37.18°	<1s	-13.00	-	-	?	Михаил Турченко	3	
<input type="checkbox"/> 47893	2014-08-17 14:30 UT	2014-08-17 16:30 CEST	Augsburg, Beieren 52.7°, 5.02°	≈3.50s	-13.00	-	-	✓	Jos Nijland	5	
<input type="checkbox"/> 47885	2014-07-14 01:07 UT	2014-07-13 21:07 EDT	Crescent beach, FL 29.76°, -81.25°	≈3.50s	-5.00	?	?	-	A Levi	1	
<input type="checkbox"/> 47884	2014-07-13 03:00 UT	2014-07-12 22:00 CDT	Allons, TN 36.52°, -85.38°	≈20.00s	-5.00	?	?	?	Tamara Bibb	1	
<input type="checkbox"/> 47804	2014-07-13 02:46 UT	2014-07-12 22:46 EDT	Big Prairie, OH 40.58°, -82.09°	≈3.50s	-8.00	?	-	-	Grant Loeber	4	
<input type="checkbox"/> 47875	2014-07-13 02:30 UT	2014-07-12 21:30 CDT	Baton Rouge, LA 30.46°, -91.05°	≈20.00s	-13.00	-	-	-	jason b	2	
<input type="checkbox"/> 47883	2014-07-13 02:30 UT	2014-07-12 21:30 CDT	Natchez, LA 31.68°, -93.05°	≈20.00s	-20.00	?	-	✓	Tammy G	3	
<input type="checkbox"/> 47859	2014-07-13 02:20 UT	2014-07-12 21:20 CDT	Baton Rouge, LA 30.38°, -91.2°	≈3.50s	-23.00	?	-	?	Elizabeth Earle	2	
<input type="checkbox"/> 47855	2014-07-13 02:15 UT	2014-07-12 21:15 CDT	Alvarado, TX 32.42°, -97.24°	≈3.50s	0.00	-	-	✓	Jordan Reed	1	
<input type="checkbox"/> 47876	2014-07-13 02:15 UT	2014-07-12 21:15 CDT	Houston, TX 29.8°, -95.69°	≈3.50s	-22.00	-	-	✓	Megan McGregor	1	
<input type="checkbox"/> 47858	2014-07-13 02:10 UT	2014-07-12 21:10 CDT	Benton, LA 32.65°, -93.71°	≈7.50s	-11.00	-	-	✓	Austin Grant	4	
<input type="checkbox"/> 47862	2014-07-13 02:10 UT	2014-07-12 21:10 CDT	Austin, TX 30.25°, -97.72°	≈7.50s	-18.00	-	-	✓	Chris Ring	3	



### Partial Events




ID	# of Rep.	UT Date & Time	Local Date & Time	Countries	States	D. Sound	C. Sound	Frag	
<a href="#">Event 1483-2014</a>	56	2014-07-13 01:46 UT	2014-07-12 20:46 CDT	US	AL, TX, LA, MS	42 no	4 yes 51 no	31 yes 18 no	



	Report Id	UT Date & Time	Local Date & Time	Time Diff.	Dist. from epicenter	Location	Dur.	Magn.	D.S.	C.S.	Frag.	Observer	★	
<input type="checkbox"/>	47776	2014-07-13 00:35 UT	2014-07-12 20:35 EDT	01:11:48	2034 km	39.81°,-74.92°	?	-10.00	-	-	-	January Hinkie	5	
<input type="checkbox"/>	47777	2014-07-13 01:30 UT	2014-07-12 21:30 EDT	00:16:48	1312 km	39.37°,-84.48°	≈20.00s	0.00	?	?	✓	Kristin Allmyer	1	
<input type="checkbox"/>	47794	2014-07-13 02:00 UT	2014-07-12 22:00 EDT	-00:13:12	2094 km	39.73°,-74.12°	≈45.00s	-17.00	✓	-	✓	John Daukas	3	
<input type="checkbox"/>	47798	2014-07-13 00:30 UT	2014-07-12 20:30 EDT	01:16:48	2020 km	39.73°,-75.06°	?	-9.00	?	-	-	Nancy Szymczak	3	
<input type="checkbox"/>	47804	2014-07-13 02:46 UT	2014-07-12 22:46 EDT	-00:59:12	1554 km	40.58°,-82.09°	≈3.50s	-8.00	?	-	-	Grant Loeber	4	
<input type="checkbox"/>	47813	2014-07-13 02:07 UT	2014-07-12 22:07 EDT	-00:20:12	1364 km	26.29°,-81.74°	≈1.50s	-5.00	-	-	-	john brush	3	
<input type="checkbox"/>	47848	2014-07-13 00:30 UT	2014-07-12 20:30 EDT	01:16:48	1328 km	39.52°,-84.4°	?	-9.00	?	-	✓	Christine Waloszczyk	3	
<input type="checkbox"/>	47851	2014-07-13 02:05 UT	2014-07-12 21:05 CDT	-00:18:12	200 km	29.38°,-95.59°	≈3.50s	-20.00	-	?	✓	Ruth Heidelberger	3	
<input type="checkbox"/>	47852	2014-07-13 02:00 UT	2014-07-12 21:00 CDT	-00:13:12	326 km	30.01°,-97.88°	≈3.50s	-13.00	-	-	?	Marcy Young	2	
<input type="checkbox"/>	47853	2014-07-13 02:00 UT	2014-07-12 21:00 CDT	-00:13:12	229 km	32.09°,-96.71°	≈7.50s	-24.00	-	-	✓	peggy moore	1	
<input type="checkbox"/>	47855	2014-07-13 02:15 UT	2014-07-12 21:15 CDT	-00:28:12	291 km	32.42°,-97.24°	≈3.50s	0.00	-	-	✓	Jordan Reed	1	
<input type="checkbox"/>	47856	2014-07-13 02:05 UT	2014-07-12 21:05 CDT	-00:18:12	461 km	29.85°,-90.04°	≈1.50s	-8.00	-	-	-	Jim Cummings	1	

### Trajectories

Event:  
 Threshold ⓘ: 
 End Threshold ⓘ: 
 Rating ⓘ: 
 Output:


### Results

Event ID	# of Rep.	RA (decimal)	RA	Dec	Start (visible)	End (visible)	Impact												
<a href="#">Event 92-2014</a>	383	<input type="text" value="176.9154735572"/>	<input type="text" value="11:47"/>	<input type="text" value="3.667417311045"/>	<table border="1"> <tr><td>Lat</td><td><input type="text" value="42.525901888216"/></td></tr> <tr><td>Lon</td><td><input type="text" value="-73.179864695482"/></td></tr> </table>	Lat	<input type="text" value="42.525901888216"/>	Lon	<input type="text" value="-73.179864695482"/>	<table border="1"> <tr><td>Lat</td><td><input type="text" value="42.982252851713"/></td></tr> <tr><td>Lon</td><td><input type="text" value="-72.907329118509"/></td></tr> </table>	Lat	<input type="text" value="42.982252851713"/>	Lon	<input type="text" value="-72.907329118509"/>	<table border="1"> <tr><td>Lat</td><td><input type="text" value="43.112720708669"/></td></tr> <tr><td>Lon</td><td><input type="text" value="-72.831452267974"/></td></tr> </table>	Lat	<input type="text" value="43.112720708669"/>	Lon	<input type="text" value="-72.831452267974"/>
Lat	<input type="text" value="42.525901888216"/>																		
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Lat	<input type="text" value="42.982252851713"/>																		
Lon	<input type="text" value="-72.907329118509"/>																		
Lat	<input type="text" value="43.112720708669"/>																		
Lon	<input type="text" value="-72.831452267974"/>																		



# WHAT'S NEXT?

Publish the form on the IMO Website



## International Meteor Organization

Home Organization Meteor Science Links Contact

Home > Meteor Science > Observation Methods > Fireball observations

### Fireball Report Form

This data will be sent to the *Fireball Data Center* of the *International Meteor Organization*. Please fill out as many boxes as possible, or you can fill out a report in the comments box at the bottom of the form. You can type as much as you want into each box.

Please check the instructions for submitting this Fireball Report Form.

#### Date, Time and Location

Date of the fireball:  (year),  (month),  (day)  
Time:  (hour),  (minutes),  (seconds)   
Location (town, country):   
If possible provide coordinates from a topographic map  
Longitude: ° ′ ″  E/W  
Latitude: ° ′ ″  N/S

#### Fireball Parameters

Apparent path:  
Fill in either stellar coordinates  
Beginning point right ascension:  Beginning point declination:   
Ending point right ascension:  Ending point declination:   
or earth-based coordinates:  
(North=360°, East=90° ...)  
Beginning point elevation (°)  Beginning point azimuth (°)   
Ending point elevation (°)  Ending point azimuth (°)   
or in coordinates of Atlas Brno:  
Beginning point x:  mm  
Beginning point y:  mm  
Ending point x:  mm  
Ending point y:  mm

# WHAT'S NEXT?

Publish the form on your regional society website

VSA

Događaji

Prijave

Prijavite vatrenu kuglu

hrvatski ▾

Login



## Prijavite vatrenu kuglu: zabavno je i lagano!

Vidjeli ste nešto vrlo svijetlo i brzo? Nešto kao jako veliku zvijezdu padalicu? Prijavite ju - možda je vatrena kugla!

Zamoliti ćemo Vas da ispunite interaktivni obrazac koji je osmišljen tako da ga može svatko može popuniti. Molimo Vas budite što precizniji. Vaša prijava je važna, te nas ona upozorava na potencionalno znanstveno značajni događaj koji bi mogao pridonijeti sveopćem znanju o meteorima. Na kraju ovog obrazca imat ćete priliku dati nam sve detalje vašeg viđenja.

- **Molimo Vas nemojte prijavljivati viđenje koje je trajalo dulje od 30 sekundi:** većina vatrenih kugli vidljiva je svega nekoliko sekundi.
- **Molimo Vas nemojte prijavljivati ponavljajuće događaje:** pojava vatrenih kugli je jako rijetka i često se dogodi samo jednom u životu.
- **Molimo Vas nemojte prijavljivati sporo treptajuće objekte ili više svjetala koja prelaze nebo** vatrena kugla izgleda kao velika zvijezda padalica

★ Započnite odmah



# WHAT'S NEXT? PROMOTE!

Google search results for "fireball". The search bar shows "fireball" and the search button. Below the search bar are tabs for "Web", "Images", "News", "Shopping", "Videos", "More", and "Search tools". The search results show "About 6,790,000 results (0.33 seconds)".

**News for fireball**

**Fireball Was Russian Spy Satellite, Experts Say**  
Sky News - 14 hours ago  
Russia has denied claims that the fireball spotted at 10.30pm was a piece of the Cosmos 2495 satellite, which was designed to shoot

**Video: Bright fireball streaks across Washington Post (blog) - 3 days ago**

**Make Your Own Fireball Cinnamon Huffington Post - 6 days ago**

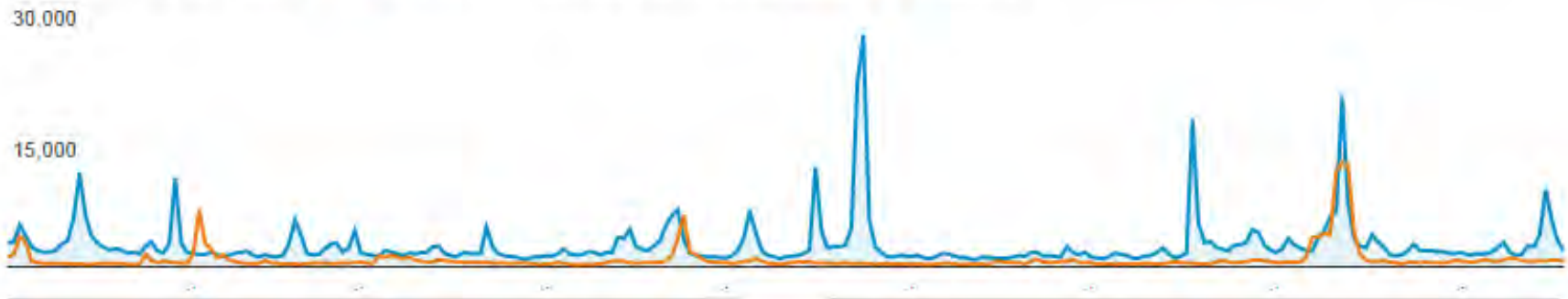
**More news for fireball**

**Fireball FAQs | American Meteor Society**  
[www.amsmeteors.org/fireballs/faq/](http://www.amsmeteors.org/fireballs/faq/) - American Meteor Society  
Several thousand meteors of fireball magnitude occur in the Earth's atmosphere each day. The vast majority of these, however, occur over the oceans and ...

**Daring Fireball**  
[daringfireball.net/](http://daringfireball.net/) - Daring Fireball

# WHAT'S NEXT? PROMOTE!

Jan 1, 2014 - Sep 18, 2014: ● Sessions    Jan 1, 2012 - Sep 18, 2012: ● Sessions



Sessions

**205.13%**

640,676 vs 209,969



Users

**186.84%**

510,690 vs 178,039



Pageviews

**159.94%**

1,054,790 vs 405,786



2008 -> 2012: **+2624%**

2012 -> 2014: **+205%**



# WHAT'S NEXT? PROMOTE!

The screenshot shows the Facebook profile for 'The American Meteor Society'. The cover photo is a night sky with a meteor streak. The profile picture is the AMS logo. The page has 12,910 likes and 32,133 post reach. A recent post by Vincent Perlem from 7 hours ago is titled 'METEOR ACTIVITY OUTLOOK FOR SEPT 20-26, 2014'. The post text says: 'As seen from the mid-northern hemisphere (45N) one would expect to see approximately 10 sporadic meteors per hour during the last hour before dawn as seen from rural observing sites...'. The post has 28 shares and is liked by Katherine Brady, Fran Mayo, Kim Bartheis, and 56 others. The left sidebar shows navigation options like 'Timeline', 'About', 'Photos', and 'Likes'. The bottom of the page shows a 'Viewing Activity from the 2010 Perseid Meteor Sho...' and another post from yesterday.

The screenshot shows the Twitter profile for @amsmeteors. The profile picture is the AMS logo. The bio reads: 'American Meteor Society official account. - #Nonprofit scientific organization supporting #Meteor #Astronomy and #citizenscience'. The profile was founded in November 2010. The main content shows three tweets. The top tweet is from Sep 15: 'Video of AMS Event #2187-2014: amsmeteors.org/2014/09/major-... #ams #fireball #video'. The middle tweet is from Sep 15: '2nd Major Fireball in 2 days! Sept14th - amsmeteors.org/2014/09/major-... #ams #CitizenScience'. The bottom tweet is from Sep 15: 'MAJOR FIREBALL OVER OREGON, WASHINGTON & BRITISH COLUMBIA ON SEPT 13rd - amsmeteors.org/2014/09/major-... #ams #citizenscience'. The tweets include photos of meteor events and a map of the United States showing meteor activity hotspots. The right sidebar shows 'Who to follow' and 'Trends'.

# WHAT'S NEXT? PROMOTE!





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