

JASON 2 CONTEST

CONCOURS
un canard sur l'océan

EDITION SPECIALE

Satellites
and climate



CENTRE NATIONAL D'ÉTUDES SPATIALES

OUTLINE

A satellite with a central body and two long arms of solar panels is shown in space. The background is a view of Earth from space, showing a curved horizon and a mix of white clouds and green landmasses.

- **JASON 2 contest description**

- **Interest**

- **Results**

- **Recommendations**

JASON contest: *UN CANARD SUR L'OCEAN* to mark the launch of JASON-2

CNES proposed a contest aimed at young people, based on resources (video, ...) that include those developed for the launch.

■ Concept

Using a 'modelling' software package which can be downloaded onto a hard disk, young people were invited to produce a **newspaper covering the various ways in which satellites, particularly **JASON-2**, contribute to:**

- studying ocean circulation (e.g. the Gulf Stream, the El Niño.)**
- monitoring the rise in sea level (its impact on coastal areas...)**
- generating 'ocean' bulletins for skippers, off-shore industries, fishing...**
- forecasting extreme events: El Niño, cyclones, etc**
- a better understanding of climate change.**

JASON contest: *UN CANARD SUR L'OCEAN*" to mark the launch of JASON-2

■ Organization

This contest was open to young people aged **8 to 18**, pupils in primary and secondary schools as well as to individuals (from 18 to 25)

It has been publicised in other countries by our partners; therefore entries could be submitted in **French** or **English**

A judging panel, composed of **scientists, teachers, journalists and outreach professionals**, rewarded the best newspapers, according to different categories and ages.

JASON contest: *UN CANARD SUR L'OCEAN*" to mark the launch of JASON-2

■ Resources

A comprehensive **resources kit** was available online from the CNES website

A mini website has been developed especially for this competition (*a dozen pages, including various resources and downloadable software*).

■ Promotion

- announced in the CNES communications media (pres release, CNES Mag, websites...), and in 4 French publications: (Wapiti, Almanach, Clés de l'Actualité, Clés de l'Actualité Junior)
- e-mails sent to national education networks, to French high schools overseas...
- plus our partners' networks

JASON contest: *UN CANARD SUR L'OCEAN* to mark the launch of JASON-2

■ Dates

- **End of August**: competition announced in Wapiti, Almanach, Clés de l'Actualité and Clés de l'Actualité Junior
- **8 September**: opening of the contest on the dedicated website :
<http://www.concoursatellitejason2.com>
- **15 December**: closing date for competition entries (on-line submission of entries)
- **23 January**: selection of the winners
- **30 January**: results publication

OUTLINE

A satellite with a central body and two long arms of solar panels is shown in space. The Earth is visible in the background, showing a curved horizon and some cloud cover. The satellite is the primary focus of the image.

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JASON contest: *UN CANARD SUR L'OCEAN* to mark the launch of JASON-2

Web site statistics:

- After 1 month: 1457 visits
- Total: **4368 visits** from **22 countries**

245 newspapers were initially submitted

60 newspapers accepted

- Primary: 7
- Middle schools: 30
- High schools : 11
- Outside of France: 11 (USA, Canada, Brazil, Marocco, Portugal...)
- Individual (non student): 1

OUTLINE

A satellite with a central gold-colored body and two long arms of solar panels (one blue, one light blue) is shown in space. The background is a view of Earth from space, showing white clouds and green landmasses.

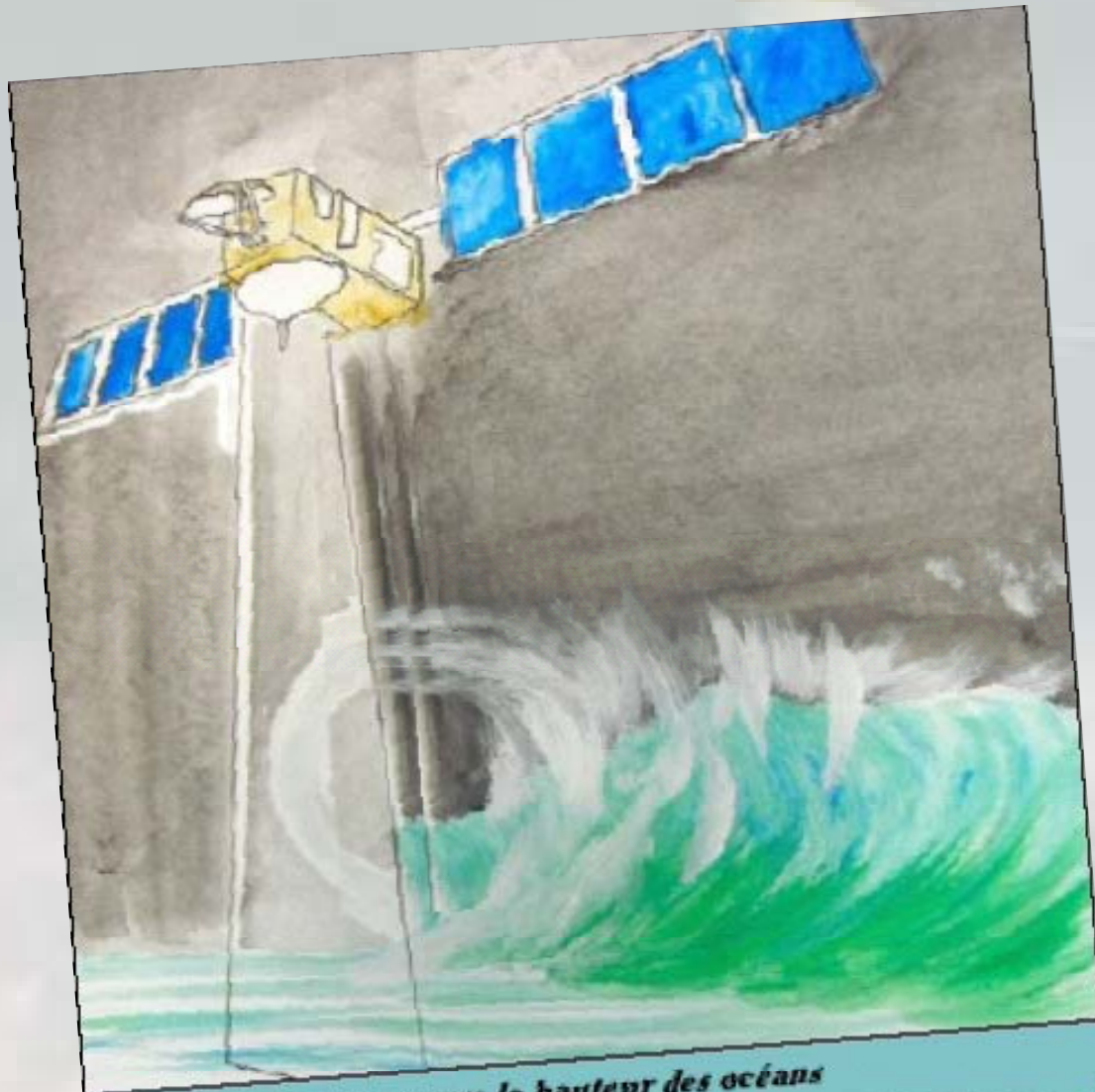
- JASON 2 contest description

- Interest

- **Results**

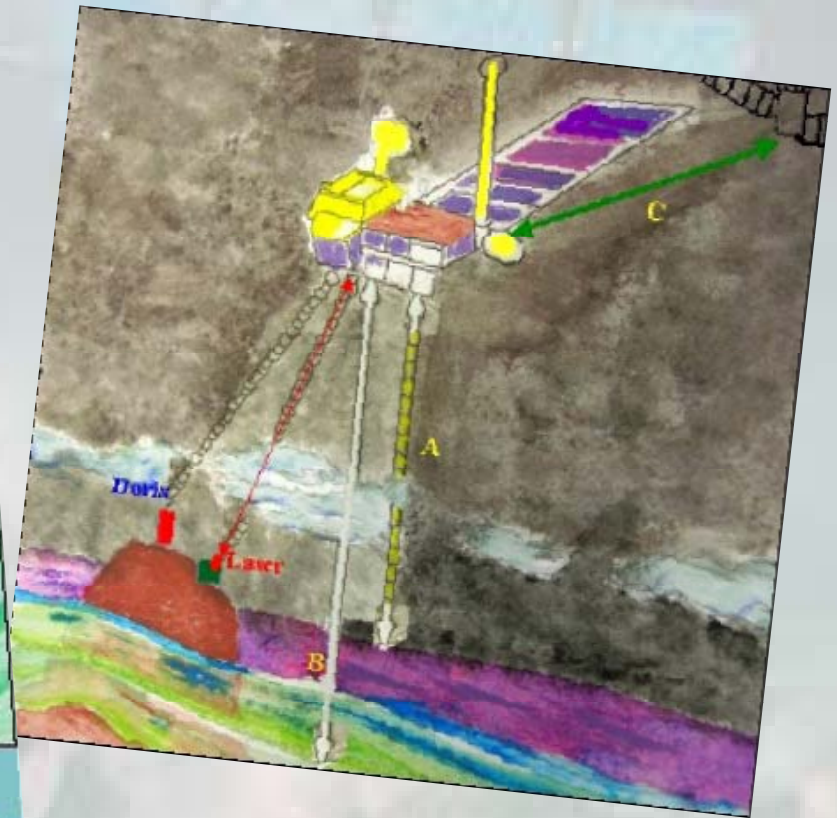
- Recommendations

They wrote about JASON...



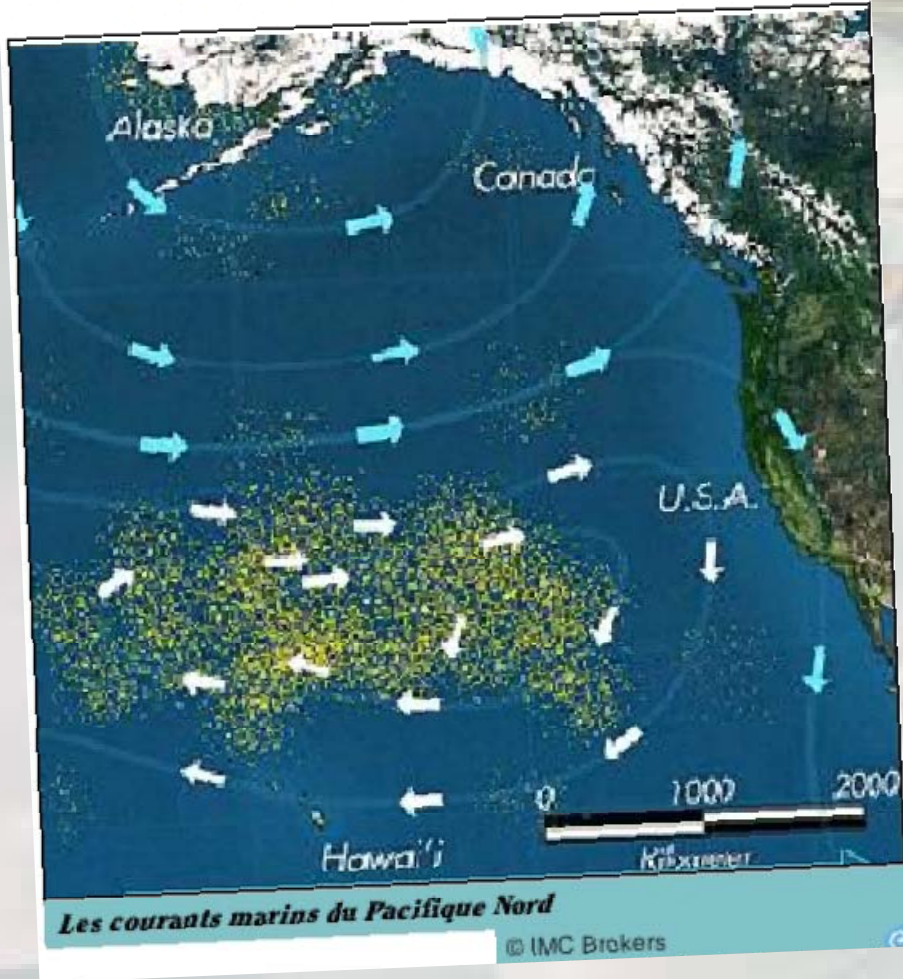
Le satellite Jason mesure la hauteur des océans

©Nico et J.Fran CNES/III Ductos



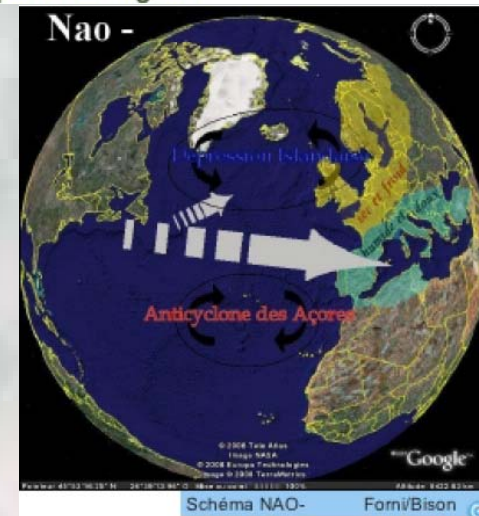
...JASON 2 APPLICATIONS

Les courants marins



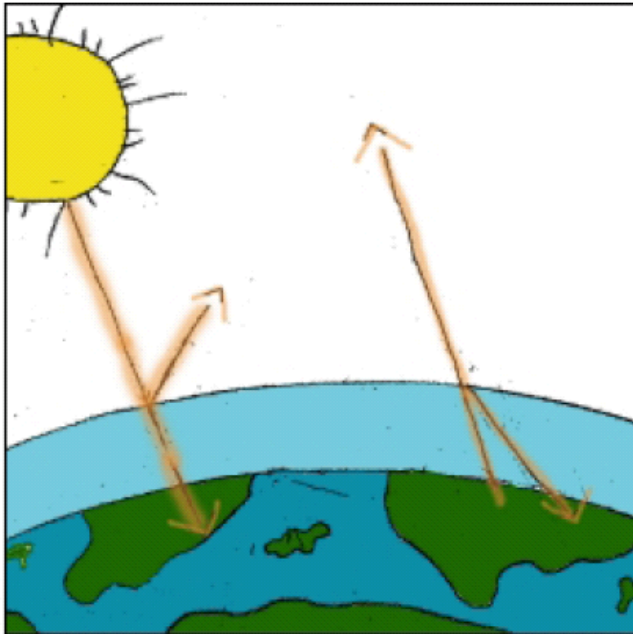
L'Europe sous influence de la NAO NAO & Météo à Paris !

Quelles sont les conditions climatiques en Europe du Nord associées à un épisode de NAO positif ou négatif ?

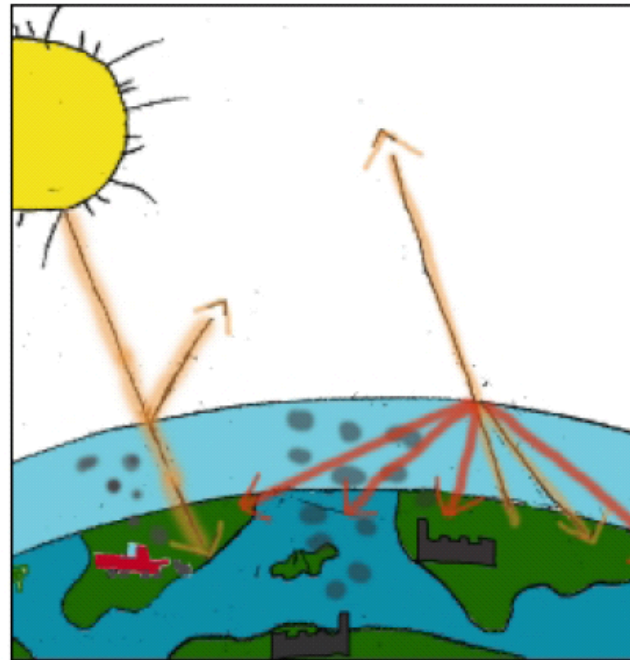


...GLOBAL WARMING

Un phénomène complexe, mais...
Un phénomène indispensable



Effet de serre naturel. Manon D ©



Effet de serre artificiel, Manon D ©



L'effet de serre

© K. Kubler

...THE IMPACT ON THEIR NEIGHBORHOOD USA

South Carolina South Carolina's climate change



Lake Hartwell in drought season
<http://www.dnr.sc.gov/>

The impact of climate change on our neighborhood.

South Carolina



South Carolina is a state located on the east coast of the U.S.A. Its climate is influenced by the Appalachian Mountains and the Atlantic Ocean. There are many consequences in South Carolina due to the climate change.



Map of the Grand Strand
insiders.com

Mauritius (coral bleaching)... Morocco (drought)

Ile Maurice

Pourquoi nos coraux meurent-ils ?



Des coraux morts dans l'océan

Maroc

Sécheresse



Piste entre Taliouine et Tizgui

© Michel Aymerich

Entre 90 et 93% de la superficie totale du Maroc serait touchés par l'aridité. Voyons ça de plus près...

...SUSTAINABLE DEVELOPMENT

Climat

C'est chaud !



Une mesure simple à mettre en oeuvre

collage, feutre, Daniel & Ahmed

L'environnement

Développement durable



Sauvons la planète !

© images-google.fr

...RENEWABLE ENERGIES

Le destin de la planète

Au mois de Septembre 2008, le Portugal a inauguré la première application commerciale du Pelamis, le "serpent de la mer".

Pelamis - "Serpent de la mer"

© www.pelamiswave.com

Sur les ressources énergétiques au Brésil LE BIOETHANOL

Le Flex Fuel

Alcool ou Gasolina: voici le choix que les stations service proposent au Brésil

Une voiture sur 3 au Brésil est déjà biocombustible ou flexfuel. Cette technologie permet à un véhicule de fonctionner soit à l'essence, soit à l'alcool soit avec un mélange des 2. Le client trouve une liberté qu'il n'avait pas. En fonction du prix à la pompe, le client peut choisir n'importe quelle proportion essence-alcool.

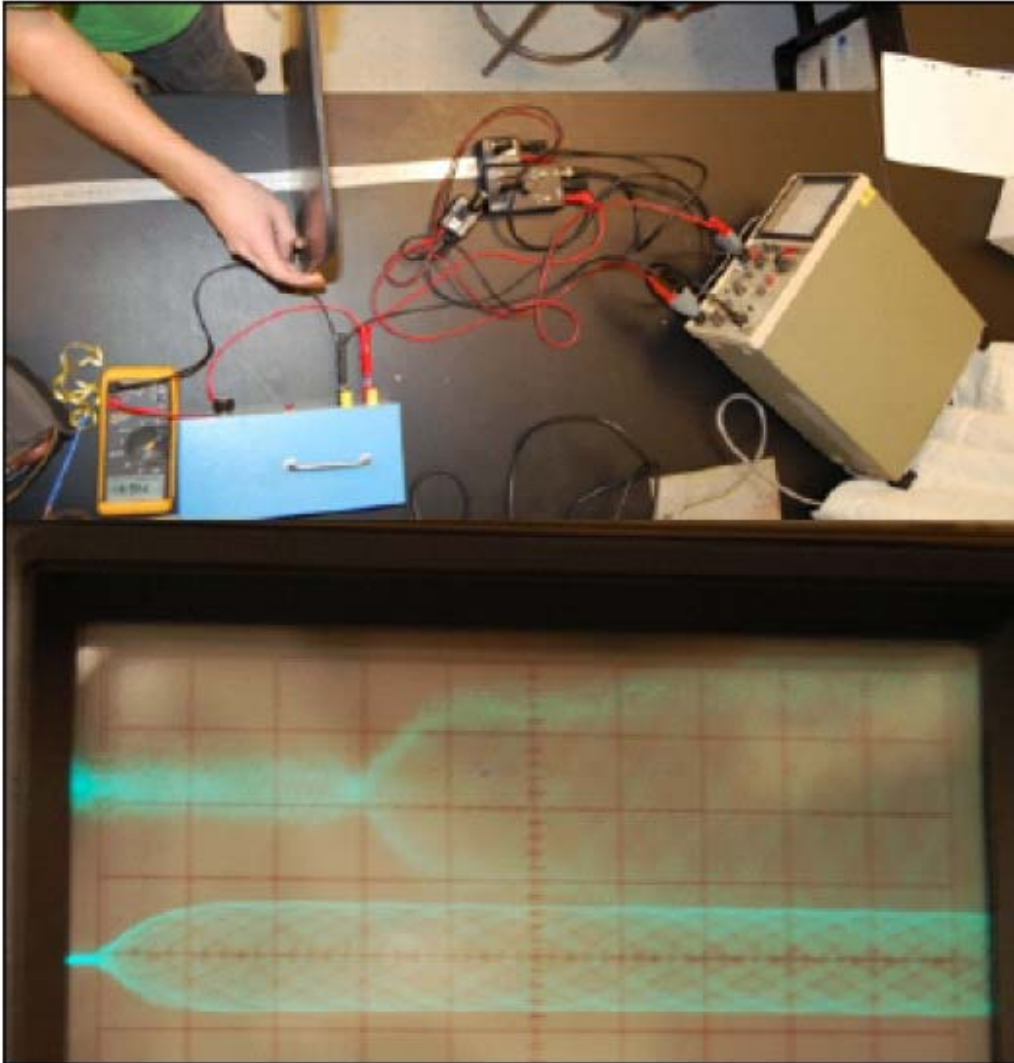
Le logiciel de la voiture adapte le mélange au moteur. Ainsi l'utilisation des mélanges plus riches en éthanol nécessite des développements spécifiques: les joints sont conçus pour résister à l'éthanol; une injection spécialement adaptée... Il n'y a pas de problème de durabilité du véhicule.

© Aline et Alicia



They try to understand how JASON works...

Comment mesurer une altitude?



Dispositif expérimental.

Jason-2, utilise plusieurs outils permettant la prise de mesure entre lui et l'océan.

Nous avons au départ fixé la distance entre l'émetteur et la surface réfléchissante à 25 cm mesurée à la règle.

Si la durée mesurée pour un aller-retour est de 1,5 ms (3 carreaux \times 0,5 ms par carreau), la distance entre l'émetteur et la surface réfléchissante est de $340 \times 0,0015 / 2 = 0,25$ m.

On retrouve donc la valeur mesurée.

Une autre mesure permet d'obtenir 34 cm pour une durée de 2ms, ce qui confirme notre résultat précédent.

THEY EXPERIMENTED...

Jason 2 et le niveau des mers.

Que faut-il craindre ?



Dispositif expérimental

© Option sciences Montréal

They conducted interviews...



An interview with Rodney Hinson

We visited the National Weather Service in Greenville (South Carolina). It is part of the National Oceanic and Atmospheric Administration. There are 122 offices in the country.

Rodney in his office

© Ophélie DeBenedettis

They made measurements...

Le cycle 3 et Pierre

© Pascal



They developed games (quizzes, rebus...)

JEUX

Rébus

Devinette

Mon premier est un poisson que l'on trouve sur la tête.
 Le Soleil correspond au second.
 Mon troisième, c'est souvent le cas d'un pécheur amateur.
 Mon quatrième correspond à l'état d'une zone dans le monde.
 Mon cinquième est une salle nette pour les chiens.
 Mon tout s'attaque à la planète.

L'intrus

Trouve l'intrus parmi les 4 dessins suivants.

Les 7 erreurs

Compare ces deux dessins. Le second comporte 7 erreurs. Retrouve-les!

Solutions

Rébus: d'acier est un satellite d'observation des océans.
 Devinette: réchauffement climatique.
 L'intrus: l'intrus est le dessin qui se distingue le plus.
 Les 7 erreurs: 1. l'oiseau est bleu, 2. l'oiseau est rouge, 3. l'oiseau est vert, 4. l'oiseau est orange, 5. l'oiseau est jaune, 6. l'oiseau est violet, 7. l'oiseau est rose.

7

PRIZES

- 1st, 2nd, and 3rd prizes were awarded in 3 categories (primary, middle, high-schools)
 - ◆ 1st prize: laptop
 - ◆ 2nd prize: telescope
 - ◆ 3rd prize: weather station
- 2 prizes for entries « outside of France »
- 1 honorable mention (*coup de cœur*)

- All participant schools received a set of classroom resources

FEEDBACK FROM THE TEACHERS

- **An email survey was sent to all participants; 70% responded**
 - All were very enthusiastic about the contest**
 - Contest provided motivation for students, including at risk students**
 - Some classes created follow-on activities (musical production, astronomy club...)**

...however

A few of them commented the requirements were not specific enough
Many of them had problems with the software web interface (uploading their newspaper)

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RECOMMENDATIONS

- **As the concept of this contest appeared to be very successful, we envision having it again, with the following modifications:**
 - ◆ **Be more specific in the requirements**
 - ◆ **Modify the contest start and duration (teachers schedule..)**
 - ◆ **Improve the software (web interface...)**
 - ◆ **Develop resources to undo incorrect technical and science preconceptions**

- **This contest could be organized in the framework of the Ocean outreach community,**
 - ◆ **Allows expanded resources**
 - ◆ **Allows greater participation**
 - ◆ **And an increased awareness of the satellite contribution to understanding Global Climate Change**

CONCLUSION

« 50 years ago there were no more than 5 people in the world aware of ocean altimetry. Today more than 1500 students participated in this ocean altimetry contest ...» Jean Louis Fellous

If you want to help spread the word

Contact me

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