



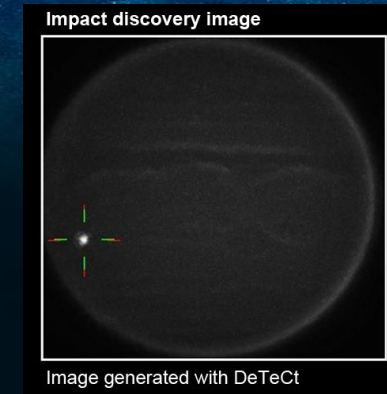
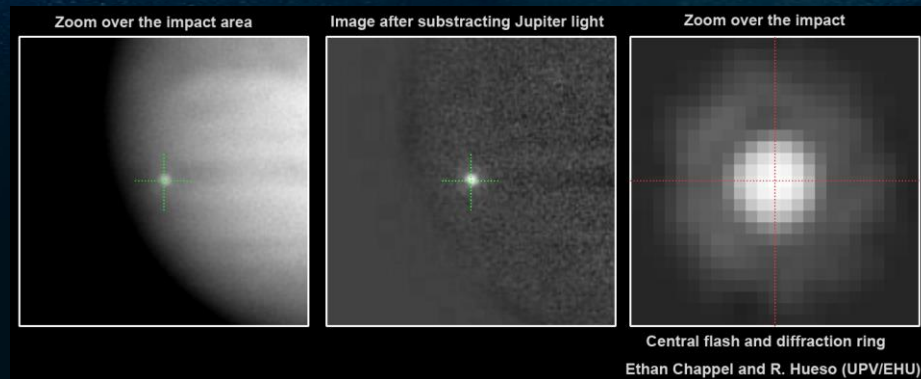
SOCIÉTÉ

LES RENCONTRES
du ciel & de l'espace

QUE DE FRANCE

Déterminez des impacts sur Jupiter !

Rencontres du Ciel & de l'Espace
20 novembre 2021



Marc Delcroix¹ (delcroix.marc@free.fr)

⁽¹⁾ commission des observations planétaires SAF

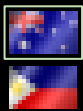
Impacts

Projet

Résultats scientifiques

Conclusion

2010.06.03



(c) A. Wesley

2010.08.20



(c) K. Aoki

2012.10.09



(c) G. Hall

2016.03.17



(c) J. MacKeon

2017.05.26



(c) S. Pedranghelu

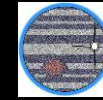
Impacts

Projet

Résultats scientifiques

Conclusion

2019.08.17



*découvert par
DeTeCt*



(c) E. Chappel

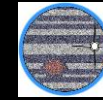
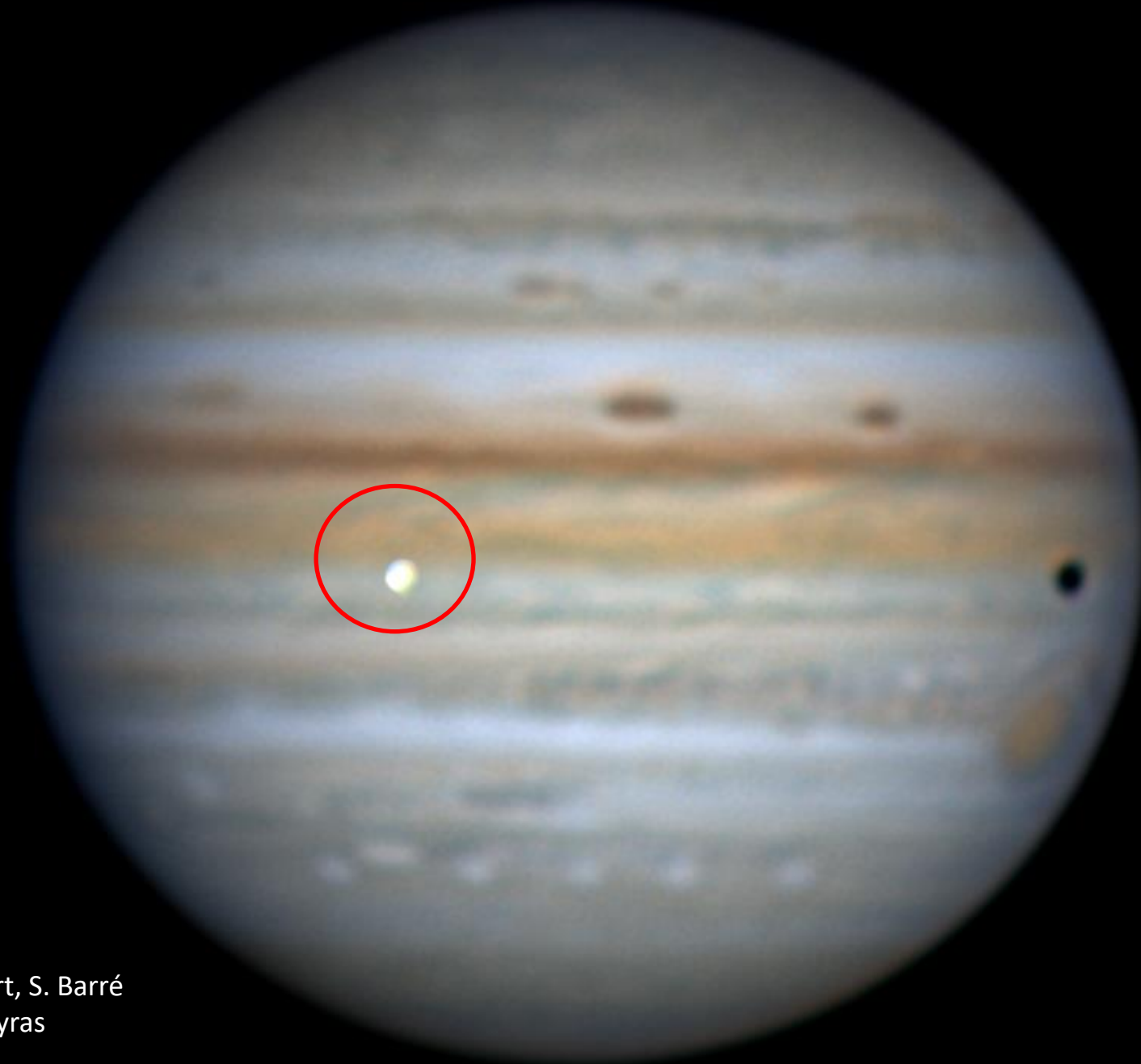
Impacts

Projet

Résultats scientifiques

Conclusion

2021.09.13



*confirmé par
DeTeCt*

(c) D. Wallang, T. Humbert, S. Barré
A. Desmougin, AstroQueyras

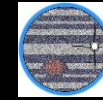
Impacts

Projet

Résultats scientifiques

Conclusion

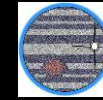
2021.10.15



*confirmé par
DeTeCt*

(c) V. PS Ang

2020.08.11



*découvert par
DeTeCt*



(c) V. PS Ang

DeTeCt est un projet et un logiciel avec pour objectifs:

- d'aider les amateurs à **découvrir des flashes d'impact** sur leur vidéos de Jupiter et Saturne
- d'estimer la **fréquence d'impact**, en collectant les résultats (positifs ou négatifs) d'analyses faites avec le logiciel

DeTeCt v3.4.1.20210523_x64 Analysis of Jupiter/Saturn videos to find impact flashes

File Preferences Help

File selection and process automation

Select folder recursively ...or... Select file auto processing auto exit when done then shutdown PC Max instances: 12/12

Impact detection

Detect impacts Probability (total) : Null / Error 1 Low 4 High 7

Check detection images, send results [Detection images to check](#) [Detection log](#) [Folder with zip file to send](#)

File processing

(Click) check detection images and send email with zip file!

Processing improvement: ASI session dark file

7 acquisitions with high probability impacts
4 acquisitions with low probability impacts
1 acquisition without any impact

CHECK and SEND the RESULTS to: delcroix.marc@free.fr NO DETECTION also MATTERS!

Date from: acquisition log SER timestamps FITS file date info

Progress

Duration processed (total): 568s

Total (12/12) File

Execution full log Processing time: 204.0s (file) 205.8s (total) 1/12 instances

```

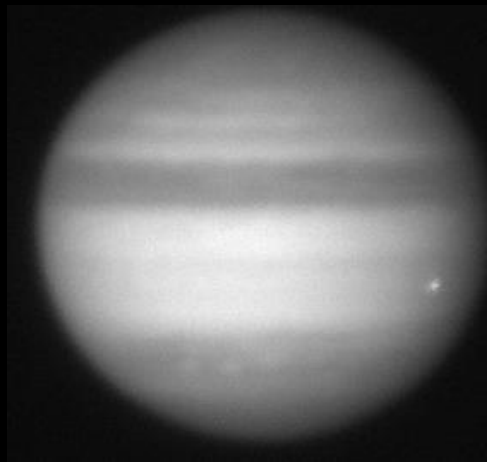
2021-05-23 20:48:38 - 7 acquisitions with high probability impacts
2021-05-23 20:48:38 - 4 acquisitions with low probability impacts
2021-05-23 20:48:38 - 1 acquisition without any impact
2021-05-23 20:48:38 -
2021-05-23 20:48:38 - Click "Check detection images..." button to open in "G:\work\Impact\tests\data_set\positives" :
2021-05-23 20:48:38 - - an explorer in "Impact_detection_run@2021-05-23_20-45-11" to check the detection images
2021-05-23 20:48:38 - - an explorer where "Impact_detection_run@2021-05-23_20-45-11.zip" to be sent by email is (along with DeTeCt log)
2021-05-23 20:48:38 - - an email to send the results by attaching "Impact_detection_run@2021-05-23_20-45-11.zip" file
2021-05-23 20:48:38 -
2021-05-23 20:48:38 - CHECK the DETECTION IMAGES for impacts and SEND the RESULTS, NO DETECTION also MATTERS!
2021-05-23 20:48:38 - delcroix.marc@free.fr
2021-05-23 20:48:38 -
2021-05-23 20:48:38 - You can SAFELY CLOSE this window.
2021-05-23 20:48:38 - =====

```

Deux méthodes pour détecter les flashes:

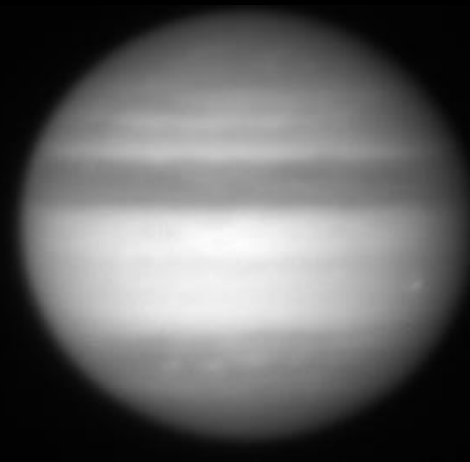
- par **photométrie différentielle** entre les trames de vidéos
- par la génération d'**images de détection** à analyser

© C. Go 2010/06
processing M. Delcroix



MAX

-



MOYENNE

=

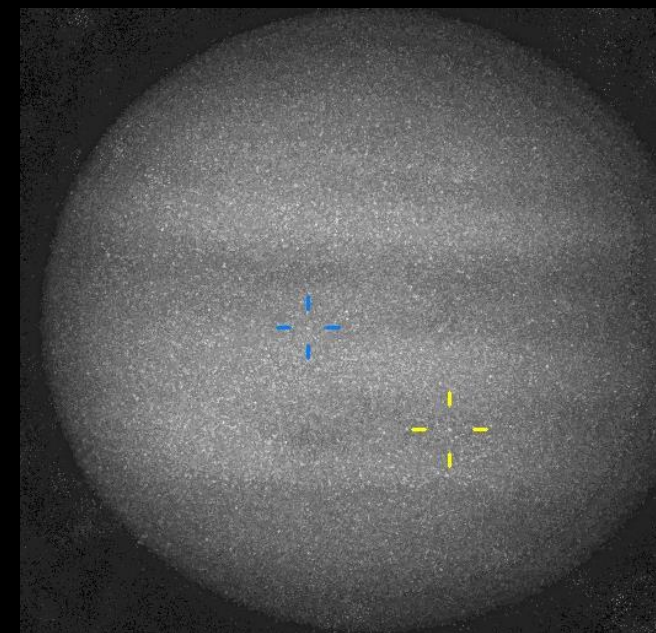


IMAGE de DETECTION

Toutes les informations disponibles venant des vidéos, des logiciels d'acquisition et de traitement sont utilisées pour caractériser les observations

L'amateur analyse lui-même ses vidéos, et envoie ses résultats au projet pour confirmation et prise en compte

La consolidation et l'analyse des contributions permet d'estimer les fréquences d'impacts



DeTeCt_jupiter_20210522_0634-0655_impact_detection_run@2021-05-22_04-37-57.log - Bloc-notes

```

[ Fichier  Éditeur  Format  Déchiffrement  Aide ]
DeTeCt: jovian impact detection software DeTeCt v3.4.0.20210518_x64
PL#48 SEND THIS FILE to Marc Delcroix - delcroix.marc@free.fr - for work on impact frequency (participants will be named if work is published) - NO DETECTION MATTERS!
confidence Rating | Start | End | Mid | Defect version and comment; os version; mean minjavgmax; mean2 minjavgmax; max-mean meanjavgmax; max-mean2 minjavgmax; diff minjavgmax; diff2 minjavg max; distance; @observer; Location; Scope; Camera; filter; Profile; Diameter (arcsec); Magnitude; Central Meridian (°); Focal length (mm); Resolution (arcsec); Binning; Bit depth; Debayer; Shutter (ms); Gain; Ga
0.0000 Null | 2021/05/22 06:34,785184 UT | 2021/05/22 06:35,785480 UT | 2021/05/22 06:35,285400 UT | 60.0020 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_26\2021-05-22-0635_2-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;106.282;255.000; 0.000; 22.922; 55.000; 0.000;102.794;255.000; 0.000; 6.925; 17.000; 0.000; 16.902;255.000; 0.000; 0.528; 8.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 207.2 CH11-339.8 CH11-3
0.0000 Null | 2021/05/22 06:40,997767 UT | 2021/05/22 06:41,997816 UT | 2021/05/22 06:41,497812 UT | 60.0000 s | 128.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_29\2021-05-22-0641_8-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;112.751;255.000; 0.000; 18.111; 41.000; 0.000;111.094;255.000; 0.000; 5.277; 12.000; 0.000; 22.441;255.000; 0.000; 0.440; 5.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 211.0 CH11-341.5 CH11-3
0.0000 Null | 2021/05/22 06:35,813283 UT | 2021/05/22 06:36,813547 UT | 2021/05/22 06:36,313500 UT | 60.0080 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_27\2021-05-22-0636_3-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;107.682;255.000; 0.000; 20.997; 50.000; 0.000;106.492;255.000; 0.000; 6.712; 18.000; 0.000; 16.520;255.000; 0.000; 0.510; 7.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 207.8 CH11-342.4 CH11-3
0.0000 Null | 2021/05/22 06:38,801100 UT | 2021/05/22 06:39,801217 UT | 2021/05/22 06:39,401158 UT | 60.0070 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_28\2021-05-22-0639_4-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;108.645;255.000; 0.000; 19.172; 45.000; 0.000;101.994;255.000; 0.000; 6.276; 16.000; 0.000; 14.472;255.000; 0.000; 0.399; 7.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 209.7 CH11-342.3 CH11-3
0.0000 Low | 2021/05/22 06:42,038750 UT | 2021/05/22 06:43,038798 UT | 2021/05/22 06:42,538750 UT | 60.0000 s | 114.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_30\2021-05-22-0642_5-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;110.412;255.000; 0.000; 19.484; 45.000; 0.000;113.422;255.000; 0.000; 6.181; 46.000; 0.000; 17.240;255.000; 0.000; 0.407; 6.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 211.6 CH11-342.2 CH11-3
0.0763 Null | 2021/05/22 06:45,366600 UT | 2021/05/22 06:46,366817 UT | 2021/05/22 06:45,866658 UT | 60.0070 s | 111.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_33\2021-05-22-0645_8-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;110.331;255.000; 0.000; 6.490; 15.000; 0.000;110.331;255.000; 0.000; 5.078; 14.000; 0.000; 12.253;255.000; 0.000; 0.391; 4.000; 141.824; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 213.7 CH11-346.2 CH11-3
0.0000 Null | 2021/05/22 06:43,265816 UT | 2021/05/22 06:44,265816 UT | 2021/05/22 06:43,765816 UT | 60.0000 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_31\2021-05-22-0643_7-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;111.310;255.000; 0.000; 15.278; 35.000; 0.000;109.873;255.000; 0.000; 7.082; 21.000; 0.000; 14.654;255.000; 0.000; 0.347; 6.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 212.4 CH11-344.9 CH11-3
0.0000 Low | 2021/05/22 06:46,290883 UT | 2021/05/22 06:47,290883 UT | 2021/05/22 06:46,790884 UT | 60.0040 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_32\2021-05-22-0646_7-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;107.536;255.000; 0.000; 12.651; 30.000; 0.000;107.536;255.000; 0.000; 5.893; 20.000; 0.000; 15.611;255.000; 0.000; 0.366; 5.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 213.0 CH11-345.0 CH11-3
0.9999 Low (# 75) | 2021/05/22 06:46,705800 UT | 2021/05/22 06:47,705902 UT | 2021/05/22 06:47,205922 UT | 60.0010 s | 122.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_34\2021-05-22-0647_2-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;111.912;255.000; 0.000; 20.629; 47.000; 0.000;111.912;255.000; 0.000; 8.673; 29.000; 0.000; 19.221;255.000; 0.000; 0.454; 6.000; 174.485; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 214.5 CH11-347.0 CH11-3
1.5286 Low (# 342) | 2021/05/22 06:47,972700 UT | 2021/05/22 06:48,972803 UT | 2021/05/22 06:48,472791 UT | 60.0010 s | 121.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_35\2021-05-22-0648_4-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;111.710;255.000; 0.000; 22.342; 51.000; 0.000;111.710;255.000; 0.000; 7.340; 31.000; 0.000; 18.445;255.000; 0.000; 0.436; 6.000; 26.077; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 215.3 CH11-347.8 CH11-3
0.0000 Null | 2021/05/22 06:49,449550 UT | 2021/05/22 06:49,449674 UT | 2021/05/22 06:49,449674 UT | 60.0030 s | 126.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_36\2021-05-22-0649_6-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;112.820;255.000; 0.000; 23.406; 52.000; 0.000;109.128;255.000; 0.000; 7.081; 18.000; 0.000; 16.922;255.000; 0.000; 0.466; 7.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 216.0 CH11-348.5 CH11-3
0.0000 Null | 2021/05/22 06:50,183300 UT | 2021/05/22 06:51,183300 UT | 2021/05/22 06:50,683300 UT | 60.0000 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_37\2021-05-22-0650_8-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;105.862;255.000; 0.000; 19.094; 46.000; 0.000;105.862;255.000; 0.000; 6.972;22;255.000; 0.000; 7.223; 19.000; 0.000; 18.216;255.000; 0.000; 0.502; 7.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 216.6 CH11-349.1 CH11-3
0.0000 Null | 2021/05/22 06:51,213250 UT | 2021/05/22 06:51,213250 UT | 2021/05/22 06:51,213250 UT | 60.0010 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_38\2021-05-22-0651_7-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;114.221;255.000; 0.000; 17.468; 39.000; 0.000;114.221;255.000; 0.000; 5.931; 16.000; 0.000; 20.548;255.000; 0.000; 0.521; 5.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 217.2 CH11-349.7 CH11-3
0.0348 Null | 2021/05/22 06:52,241583 UT | 2021/05/22 06:53,241583 UT | 2021/05/22 06:52,741542 UT | 59.9950 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_39\2021-05-22-0652_7-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;106.173;255.000; 0.000; 17.918; 43.000; 0.000;106.173;255.000; 0.000; 8.625;25;255.000; 0.000; 10.340; 31.000; 0.000; 18.909;255.000; 0.000; 0.447; 6.000; 47.424; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 217.9 CH11-350.3 CH11-3
0.0000 Null | 2021/05/22 06:53,269984 UT | 2021/05/22 06:54,269950 UT | 2021/05/22 06:53,769916 UT | 60.0040 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_40\2021-05-22-0653_7-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;109.515;255.000; 0.000; 21.473; 50.000; 0.000;109.515;255.000; 0.000; 6.527; 21.000; 0.000; 17.554;255.000; 0.000; 0.484; 7.000; 9999.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 218.5 CH11-351.0 CH11-3
3.0400 Null | 2021/05/22 06:55,079813 UT | 2021/05/22 06:56,079813 UT | 2021/05/22 06:55,429568 UT | 41.7150 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_43\2021-05-22-0655_8-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;101.294;255.000; 0.000; 14.179; 31.000; 0.000;101.294;255.000; 0.000; 9.311; 20.000; 0.000; 16.401;255.000; 0.000; 0.311; 5.000; 0.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 219.7 CH11-352.2 CH11-3
0.0000 Null | 2021/05/22 06:56,079813 UT | 2021/05/22 06:56,079813 UT | 2021/05/22 06:56,079813 UT | 60.0000 s | 129.000 ffr/s | D:\ASTRONOMIA - CAPTURAS\2021-05-22_275mmE06 ZAO Jupiter FCL26 @ 421LRV_43\2021-05-22-0655_8-IRUV-imp.ser; Defect v3.4.0.20210518_x64 (Firecapture 2.6); Mini@or_@above_648; 0.000;101.294;255.000; 0.000; 14.179; 31.000; 0.000;101.294;255.000; 0.000; 9.311; 20.000; 0.000; 16.401;255.000; 0.000; 0.311; 5.000; 0.000; ; ; ZAO AS1290WC; IRUV; Jupiter; 39.87; -2.36; 219.7 CH11-352.2 CH11-3

```

Impacts

Projet

Résultats scientifiques

Conclusion

2 planètes
surveillées

9 années de projet

2+2 flash d'impacts

découverts + confirmés

18 années
d'opposition étudiées

156 participants

17 articles et présentations
aux conférences

232 jours complets
d'observations

de **23** pays

27 000 lignes de code

213 000 vidéos analysées

Impact flashes detection with DeTeCt software project /
 Projet de détection de flash d'impacts avec le logiciel DeTeCt
 by/par Marc Delcroix

NEW v3.4.0! [Software download / téléchargement du logiciel](#) for participating to the project / pour participer au projet
 NEW! [DeTeCt quick user guide](#)

Estimation des fréquences d'impact par DeTeCt (au 24 mai 2021)
Jupiter: ~12,6 impacts/an (109 observateurs ~165 000 vidéos = 174 jours)
Saturne: <26,4 impacts/an (44 observateurs ~ 15 000 vidéos = 28 jours)

estimation of 12.6 impacts per year (absolute number)
 total excludes 10,236 days of simultaneous observations

estimation of less than 26.4 impacts per year (absolute number)
 total excludes 0,214 days of simultaneous observations

| Observer | Duration | Number of videos | Date range |
|---|---------------------|----------------------|--------------------------------|
| Total : 109 observers | 174.122 days | 164620 videos | 2003/04/18 - 2021/05/22 |
| Zac Pujic (Australia) | 22.511 days | 9081 | 2005/02/22 - 2020/09/04 |
| Benito Loyola (USA) | 20.164 days | 21551 | 2018/02/17 - 2020/11/15 |
| Michel Jacquesson (France) | 19 | | |
| Paul Rolet (France) | 16 | | |
| Clyde Foster (South Africa) | 9 | | |
| Manos Kardasis (Greece) | 9 | | |
| Niall Mac Neill (Australia) | 5 | | |
| Sauveur Pedranghelu (France) | 5 | | |
| Ethan Chappel (USA) | 5 | | |
| Thomas Ashcraft (USA) | 5 | | |
| Bernd Gaehrken (Germany) | 4 | | |
| Jose Luis Pereira (Brazil) | 4 | | |
| Alan Coffelt (USA) | 4 | | |
| Marc Delcroix (France) | 3 | | |
| Agapios Elia (Cyprus) | 2 | | |
| Christophe Pellier (France) | 2 | | |
| Xavier Dupont (France) | 2 | | |
| Hampton University Sayanagi Group (USA) | 2 | | |
| Grant Blair (USA) | 1 | | |
| Jean-Luc Dauvergne (France) | 1 | | |
| Michel Miniou (France) | 1 | | |
| Trevor Barry (Australia) | 1 | | |
| Pascal Bayle (France) | 1 | | |
| David Domine (France) | 1 | | |
| Pic du Midi (Colas/Delcroix/Dauvergne/Sylla) (France) | 1 | | |
| Torsten Mellenthin (Germany) | 1 | | |
| Lammertus de Vries (Spain) | 1 | | |
| Ioannis Bouhras (Greece) | 1 | | |
| Jocelyn Serot (France) | 1 | | |
| Stephane Gonzales (France) | 1 | | |
| Martin Lewis (UK) | 1 | | |
| Matic Smrekar (Slovenia) | 0 | | |
| Arnaud Claisse (France) | 0 | | |
| David Hamilton (Puerto Rico) | 0 | | |
| Steve Dean (New Zealand) | 0 | | |
| Oleg Zaharcuc (Moldova) | 0.822 day | 1120 | 2016/05/19 - 2020/08/30 |
| Paul Jones (USA) | 0.819 day | 723 | 2011/08/29 - 2015/04/05 |
| Philippe Chatelain (France) | 0.810 day | 60 | 2017/03/28 - 2019/08/02 |
| Wellington Pereira Fonseca (Brazil) | 0.786 day | 604 | 2019/08/03 - 2021/05/20 |
| Jean-Jacques Poupeau (France) | 0.759 day | 1143 | 2013/02/05 - 2016/03/23 |

| Observer | Duration | Number of videos | Date range |
|------------------------------|--------------------|---------------------|--------------------------------|
| Total : 44 observers | 27.652 days | 14988 videos | 2003/11/07 - 2021/05/22 |
| Zac Pujic (Australia) | 5.252 days | 2131 | 2005/02/04 - 2018/04/21 |
| Sauveur Pedranghelu (France) | 3.716 days | 1033 | 2019/06/03 - 2020/11/30 |
| | 3.419 days | 3323 | 2015/04/06 - 2021/04/27 |
| | 2.983 days | 1186 | 2007/01/20 - 2020/08/18 |
| | 2.284 days | 635 | 2015/05/12 - 2020/09/08 |
| | 1.970 day | 1136 | 2013/07/30 - 2020/11/08 |
| | 1.069 day | 713 | 2008/03/10 - 2018/10/27 |
| | 0.649 day | 325 | 2016/05/22 - 2020/08/30 |
| | 0.636 day | 474 | 2003/11/07 - 2019/12/04 |
| | 0.604 day | 306 | 2020/08/10 - 2021/05/20 |
| | 0.497 day | 567 | 2018/07/11 - 2019/07/30 |
| | 0.454 day | 434 | 2012/08/06 - 2019/08/15 |
| | 0.445 day | 255 | 2014/03/14 - 2016/04/24 |
| | 0.424 day | 414 | 2020/05/27 - 2021/05/19 |
| | 0.421 day | 43 | 2017/05/21 - 2019/08/02 |
| | 0.360 day | 297 | 2019/09/03 - 2021/03/27 |
| | 0.274 day | 267 | 2019/05/22 - 2021/05/22 |
| | 0.260 day | 62 | 2015/05/21 - 2016/05/04 |
| | 0.225 day | 176 | 2020/06/24 - 2020/10/16 |
| | 0.223 day | 92 | 2014/03/14 - 2016/07/16 |
| | 0.195 day | 16 | 2019/06/29 - 2020/09/24 |
| | 0.195 day | 89 | 2015/05/23 - 2017/06/05 |
| | 0.171 day | 35 | 2016/04/23 - 2017/04/08 |
| | 0.167 day | 62 | 2015/05/03 - 2020/08/09 |
| | 0.167 day | 169 | 2015/05/21 - 2019/07/28 |
| | 0.107 day | 84 | 2020/05/25 - 2020/10/24 |
| | 0.095 day | 34 | 2016/05/06 - 2016/06/18 |
| | 0.092 day | 88 | 2011/06/27 - 2019/05/08 |
| | 0.080 day | 63 | 2019/07/20 - 2020/08/27 |
| | 0.078 day | 82 | 2014/06/08 - 2015/07/17 |
| | 0.072 day | 55 | 2017/06/10 - 2020/08/08 |
| | 0.064 day | 53 | 2021/03/29 - 2021/05/04 |
| | 0.064 day | 96 | 2017/08/10 - 2019/08/19 |
| | 0.055 day | 79 | 2016/05/08 - 2016/05/13 |
| | 0.035 day | 20 | 2020/07/25 - 2020/08/19 |
| | 0.031 day | 4 | 2019/09/03 - 2019/09/04 |
| | 0.026 day | 19 | 2019/08/03 - 2020/08/28 |
| | 0.022 day | 18 | 2017/06/11 - 2017/06/11 |
| | 0.017 day | 20 | 2020/08/17 - 2020/09/08 |
| | 0.011 day | 5 | 2020/08/08 - 2020/08/08 |





Attribution du Prix Gemini 2021

Nous avons le plaisir de vous annoncer l'attribution, à l'unanimité des membres du jury, du prix Gemini 2021 à la candidature « Projet Collaboratif Amateurs-Professionnels de détection et caractérisation d'impacts sur Jupiter » portée par Marc Delcroix Astronome Amateur en Sciences Planétaires et Ricardo Hueso du Laboratoire de Physique Appliquée du Pays Basque UPV/EHU, avec le réseau mondial de 109 astronomes amateurs participants venant de 20 pays. Le prix a été remis lors des journées de la SF2A 2021. La séance plénière du jeudi 10 juin 2021 de 9h à 10h a été dédiée à la remise des prix 2021 lors d'une conférence où les récipiendaires ont fait un exposé en ligne de leur projet. Le prix est assorti de la remise par la SF2A d'un chèque de 1000 euros et d'une médaille avec l'autorisation de l'emploi du logo Gemini dans la communication de ce projet pour ses recherches de soutiens et de développements futurs.

Le projet fera l'objet d'un article qui sera publié par la Société Astronomique de France dans le magazine l'Astronomie avant la fin de l'année 2021. Il fera l'objet d'une conférence et d'un atelier organisé par la SAF et la SF2A.

Pour les membres du Jury

Eric Lagadec, Président de la SF2A Patrick Baradeau, Président de la SAF

Impact flashes detection with DeTeCt software project /
Projet de détection de flash d'impacts avec le logiciel DeTeCt
by/par Marc Delcroix

NEW v3.4.0! [Software download / téléchargement du logiciel](#) for participating to the project / pour participer au projet
NEW! [DeTeCt quick user guide](#)

Estimation des fréquences d'impact par DeTeCt (au 19 novembre 2021)

Jupiter: ~22,9 impacts/an (156 observateurs ~213 000 vidéos ~232 jours)
Saturne: <26,4 impacts/an (67 observateurs ~ 22 000 vidéos ~37 jours)

estimation of 12,6 impacts per year (absolute number)
total excludes 10,236 days of simultaneous observations

| Observer | Duration | Number of videos | Date range |
|---|---------------------|----------------------|--------------------------------|
| Total : 109 observers | 174.122 days | 164620 videos | 2003/04/18 - 2021/05/22 |
| Zac Pujic (Australia) | 22.511 days | 9081 | 2005/02/22 - 2020/09/04 |
| Benito Loyola (USA) | 20.164 days | 21551 | 2018/02/17 - 2020/11/15 |
| Michel Jacquesson (France) | 19.773 days | 10158 | 2014/03/12 - 2020/08/26 |
| Paul Rolet (France) | 16.245 days | 13647 | 2012/09/07 - 2020/11/12 |
| Clyde Foster (South Africa) | 9.640 days | 11752 | 2015/01/30 - 2021/04/27 |
| Manos Kardasis (Greece) | 9.606 days | 8161 | 2004/02/29 - 2019/11/27 |
| Niall Mac Neill (Australia) | 5.708 days | 6548 | 2016/05/19 - 2021/05/20 |
| Sauveur Pedranghelu (France) | 5.576 days | 7063 | 2017/05/26 - 2020/12/03 |
| Ethan Chappel (USA) | 5.294 days | 3863 | 2013/09/01 - 2020/12/15 |
| Thomas Ashcraft (USA) | 5.192 days | 6538 | 2013/10/09 - 2020/10/17 |
| Bernd Gaehrken (Germany) | 4.707 days | 6273 | 2016/03/06 - 2020/09/19 |
| Jose Luis Pereira (Brazil) | 4.195 days | 5706 | 2019/01/30 - 2021/05/22 |
| Alan Coffelt (USA) | 4.011 days | 2962 | 2013/10/04 - 2020/10/20 |
| Marc Delcroix (France) | 3.877 days | 3010 | 2006/04/13 - 2020/11/18 |
| Agapios Elia (Cyprus) | 2.493 days | 3037 | 2013/11/09 - 2020/08/19 |
| Christophe Pellier (France) | 2.374 days | 906 | 2012/02/20 - 2019/07/28 |
| Xavier Dupont (France) | 2.062 days | 1867 | 2012/08/16 - 2015/04/25 |
| Hampton University Sayanagi Group (USA) | 2.028 days | 1543 | 2018/03/23 - 2019/03/29 |
| Grant Blair (USA) | 1.988 day | 1874 | 2013/08/20 - 2016/04/21 |
| Jean-Luc Dauvergne (France) | 1.822 day | 1607 | 2016/05/04 - 2020/08/17 |
| Michel Miniou (France) | 1.695 day | 1533 | 2003/04/18 - 2020/07/20 |
| Trevor Barry (Australia) | 1.615 day | 2425 | 2009/07/06 - 2012/12/30 |
| Pascal Bayle (France) | 1.494 day | 1702 | 2012/11/30 - 2017/05/21 |
| David Domine (France) | 1.450 day | 907 | 2016/02/25 - 2017/04/10 |
| Pic du Midi (Colas/Delcroix/Dauvergne/Sylla) (France) | 1.312 day | 1907 | 2010/09/29 - 2019/08/16 |
| Torsten Mellenthin (Germany) | 1.218 day | 1416 | 2016/01/28 - 2017/06/24 |
| Lammertus de Vries (Spain) | 1.171 day | 635 | 2009/08/03 - 2015/05/08 |
| Ioannis Bouhras (Greece) | 1.164 day | 1734 | 2015/12/24 - 2021/03/27 |
| Jocelyn Serot (France) | 1.154 day | 880 | 2014/01/10 - 2019/06/02 |
| Stephane Gonzales (France) | 1.131 day | 1243 | 2013/12/20 - 2018/06/03 |
| Martin Lewis (UK) | 1.020 day | 1509 | 2015/03/22 - 2019/09/05 |
| Matic Smrekar (Slovenia) | 0.956 day | 1648 | 2009/07/29 - 2019/06/10 |
| Arnaud Claisse (France) | 0.941 day | 842 | 2014/01/19 - 2016/05/03 |
| David Hamilton (Puerto Rico) | 0.908 day | 674 | 2020/07/02 - 2020/09/26 |
| Steve Dean (New Zealand) | 0.852 day | 609 | 2020/07/09 - 2020/10/24 |
| Oleg Zaharciuc (Moldova) | 0.822 day | 1120 | 2016/05/19 - 2020/08/30 |
| Paul Jones (USA) | 0.819 day | 723 | 2011/08/29 - 2015/04/05 |
| Philippe Chatelain (France) | 0.810 day | 60 | 2017/03/28 - 2019/08/02 |
| Wellington Pereira Fonseca (Brazil) | 0.786 day | 604 | 2019/08/03 - 2021/05/20 |
| Jean-Jacques Poupeau (France) | 0.759 day | 1143 | 2013/02/05 - 2016/03/23 |

estimation of less than 26,4 impacts per year (absolute number)
total excludes 0,214 days of simultaneous observations

| Observer | Duration | Number of videos | Date range |
|---|--------------------|---------------------|--------------------------------|
| Total : 44 observers | 27.652 days | 14988 videos | 2003/11/07 - 2021/05/22 |
| Zac Pujic (Australia) | 5.252 days | 2131 | 2005/02/04 - 2018/04/21 |
| Sauveur Pedranghelu (France) | 3.716 days | 1033 | 2019/06/03 - 2020/11/30 |
| Clyde Foster (South Africa) | 3.419 days | 3323 | 2015/04/06 - 2021/04/27 |
| Marc Delcroix (France) | 2.983 days | 1186 | 2007/01/20 - 2020/08/18 |
| Paul Rolet (France) | 2.284 days | 635 | 2015/05/12 - 2020/09/08 |
| Ethan Chappel (USA) | 1.970 day | 1136 | 2013/07/30 - 2020/11/08 |
| Manos Kardasis (Greece) | 1.069 day | 713 | 2008/03/10 - 2018/10/27 |
| Oleg Zaharciuc (Moldova) | 0.649 day | 325 | 2016/05/22 - 2020/08/30 |
| Michel Miniou (France) | 0.636 day | 474 | 2003/11/07 - 2019/12/04 |
| Wellington Pereira Fonseca (Brazil) | 0.604 day | 306 | 2020/08/10 - 2021/05/20 |
| Benito Loyola (USA) | 0.497 day | 567 | 2018/07/11 - 2019/07/30 |
| Pic du Midi (Colas/Delcroix/Dauvergne/Sylla) (France) | 0.454 day | 434 | 2012/08/06 - 2019/08/15 |
| Grant Blair (USA) | 0.445 day | 255 | 2014/03/14 - 2016/04/24 |
| Niall Mac Neill (Australia) | 0.424 day | 414 | 2020/05/27 - 2021/05/19 |
| Philippe Chatelain (France) | 0.421 day | 43 | 2017/05/21 - 2019/08/02 |
| Ioannis Bouhras (Greece) | 0.360 day | 297 | 2019/09/03 - 2021/03/27 |
| Jose Luis Pereira (Brazil) | 0.274 day | 267 | 2019/05/22 - 2021/05/22 |
| Arnaud Claisse (France) | 0.260 day | 62 | 2015/05/21 - 2016/05/04 |
| Isaac Lozano Rey (Spain) | 0.225 day | 176 | 2020/06/24 - 2020/10/16 |
| Societe Astronomique de Touraine (France) | 0.223 day | 92 | 2014/03/14 - 2016/07/16 |
| Christian Pinter (Austria) | 0.195 day | 16 | 2019/06/29 - 2020/09/24 |
| Stephane Gonzales (France) | 0.195 day | 89 | 2015/05/23 - 2017/06/05 |
| David Domine (France) | 0.171 day | 35 | 2016/04/23 - 2017/04/08 |
| Alan Coffelt (USA) | 0.167 day | 62 | 2015/05/03 - 2020/08/09 |
| Martin Lewis (UK) | 0.167 day | 169 | 2015/05/21 - 2019/07/28 |
| David Olivos (Mexico) | 0.107 day | 84 | 2020/05/25 - 2020/10/24 |
| Emmanuel Thiers (France) | 0.095 day | 34 | 2016/05/06 - 2016/06/18 |
| Matic Smrekar (Slovenia) | 0.092 day | 88 | 2011/06/27 - 2019/05/08 |
| Denis Huber (France) | 0.080 day | 63 | 2019/07/20 - 2020/08/27 |
| Charles Galdies (Malta) | 0.078 day | 82 | 2014/06/08 - 2015/07/17 |
| Philipp Salzgeber (Austria) | 0.072 day | 55 | 2017/06/10 - 2020/08/08 |
| Viamir da Silva Junior (Brazil) | 0.064 day | 53 | 2021/03/29 - 2021/05/04 |
| Charles Triana (Colombia) | 0.064 day | 96 | 2017/08/10 - 2019/08/19 |
| Blake Estes (USA) | 0.055 day | 79 | 2016/05/08 - 2016/05/13 |
| Lee Keith (USA) | 0.035 day | 20 | 2020/07/25 - 2020/08/19 |
| Michel Jacquesson (France) | 0.031 day | 4 | 2019/09/03 - 2019/09/04 |
| Troy Tranter (Australia) | 0.026 day | 19 | 2019/08/03 - 2020/08/28 |
| Adrien Marezac (France) | 0.022 day | 18 | 2017/06/11 - 2017/06/11 |
| Garry Dymond (Canada) | 0.017 day | 20 | 2020/08/17 - 2020/09/08 |
| Armando Vaccaro (Italy) | 0.011 day | 5 | 2020/08/08 - 2020/08/08 |

Chaleureux remerciements aux très nombreux participants au projet !



Rejoignez nous!



A retenir


- ✓ Projet de **collaboration pro-am** avec de **nombreux participants, mené** depuis plusieurs années par un **amateur Français ;)**
 - ✓ **Impact détecté** grâce au logiciel

 - ✓ **Des résultats scientifiques:**
 - La **fréquence** d'impacts est **cohérente** avec d'autres travaux
 - Les observations permettent de **remonter aux caractéristiques des corps** impactants

 - ✓ Participation facile et utile, rendez-vous sur http://www.astrosurf.com/planetessaf/doc/project_detect.php

File selection and process automation

Select folder recursively ...or... Select file auto processing auto exit when done then shutdown PC

Max instances: 

Impact detection

Probability (total): Null / Error Low High

[Detection images to check](#) [Detection log](#) [Folder with zip file to send](#)

File processing

(Click) check detection images and send email with zip file!

Processing improvement:
 AS! session
 dark file

7 acquisitions with high probability impacts
 4 acquisitions with low probability impacts
 1 acquisition without any impacts

CHECK and SEND the RESULTS to: delcroix.marc@free.fr DETECTION also MATTERS



Execution full log Processing time (file) 5.8s (total) 1/12 instances

```

2021-05-23 20:48:38 - 7 acquisitions with high probability impacts
2021-05-23 20:48:38 - 4 acquisitions with low probability impacts
2021-05-23 20:48:38 - 1 acquisition without any impact
2021-05-23 20:48:38 -
2021-05-23 20:48:38 - Click "Check detection images..." button to open in "G:\work\Impact\tests\data_set\positives":
2021-05-23 20:48:38 - - an explorer in "Impact_detection_run@2021-05-23_20-45-11" to check the detection images
2021-05-23 20:48:38 - - an explorer where "Impact_detection_run@2021-05-23_20-45-11.zip" to be sent by email is (along with DeTeCt log)
2021-05-23 20:48:38 - - an email to send the results by attaching "Impact_detection_run@2021-05-23_20-45-11.zip" file
2021-05-23 20:48:38 -
2021-05-23 20:48:38 - CHECK the DETECTION IMAGES for impacts and SEND the RESULTS, NO DETECTION also MATTERS!
2021-05-23 20:48:38 - delcroix.marc@free.fr
2021-05-23 20:48:38 -
2021-05-23 20:48:38 - You can SAFELY CLOSE this window.
2021-05-23 20:48:38 - =====
  
```

DEMO

