On February 12, 2023, a small asteroid on approach to Earth was discovered by K. Sarneczky at the Piszkéstető station of the Konkoly Observatory. This asteroid, later named 2023 CX1, was predicted to impact over Normandy, France, just 6.7 hours later—a rare event, as only eight asteroids have ever been detected before colliding with Earth. Fortunately, the meter sized asteroid posed no threat, instead offering a unique opportunity to observe its atmospheric disintegration and recover meteorite fragments.

Prompt alerts from ESA and NASA, quickly disseminated by the International Meteor Organization and the FRIPON/Vigie-Ciel project, mobilized professional and citizen science networks worldwide. This rapid response led to the first targeted fireball observations, collecting a comprehensive dataset of the meteoroid's atmospheric entry. These records, analyzed jointly by researchers from several countries, facilitated a quick determination of the meteorite landing location.

The FRIPON/Vigie-Ciel team, along with their collaborators, promptly arrived at the fall site, engaged with local residents, secured exploration permissions, and initiated field searches. With the help of numerous volunteers, the first Saint-Pierre-le-Viger meteorite was discovered within hours of the fall.

Today, the international collaboration between researchers and space enthusiasts continues to study this extraordinary event. To unravel the history of this small asteroid, we established the 2023 CX1 Consortium, an international and interdisciplinary research group dedicated to the Saint-Pierre-le-Viger meteorite.

Consortium Members

Each member is listed only once, although many made substantial contributions to multiple aspects of the analysis.

Principal Investigators

- Auriane Egal
- Denis Vida
- François Colas
- Brigitte Zanda

Analysis & Consortium Coordination

- Sylvain Bouley
- Asma Steinhausser
- Pierre Vernazza
- Adrien Malgoyre
- Peter Brown
- Olivier Hernandez
- Peter Jenniskens
- Pierre Beck

Team FRIPON/Vigie_CIel

- Jérôme Gattaceca

- Mirel Birlan
- Jérémie Vaubaillon
- Simon Jeanne
- Lucie Maquet
- Karl Antier
- Simon Anghel

Asteroid Orbit, Size and Shape
- Krisztián Sárneczky
- András Pál
- Marco Micheli
- Davide Farnocchia
- Shantanu Naidu
- Nick Moskovitz
- Theodore Kareta
- Toni Santana-Ros
- Josef Hanuš
- Maxime Devogèle

Fireball Optical Analysis
- Jiři Borovička
- Pavel Spurný
- Hadrien Devillepoix

Fireball Seismo-Acoustic Analysis
- Alexis Le Pichon
- Julien Vergoz
- Gilles Mazet-Roux
- Jérôme Vergne
- Luke McFadden
- Jelle Assink
- Läslo Evers

Dynamical Analysis
- Paul Wiegert
- Miroslav Brož
- Michaël Marsset
- Anthony Lagain
- Patrick Shober

Airburst Simulations
- Darrel Robertson

Meteorite classification :
- Ludovic Ferrière
- Ioannis Baziotis
- Matthieu Gounelle

- Sylvain Pont
- Chloé Brillatz

Meteorite Petrography and Chemical Composition
- Jean-Alix Barrat
- Sebastiaan De Vet

Meteorite Noble Gas Analysis
- Daniela Krietsch
- Henner Busemann
- Colin Maden
- Lisa Maria Eckart
- Rainer Wieler

Meteorite Gamma-Spectrometry and Accelerator Mass Spectrometry
- Pavel Povinec
- Ivan Sykora
- Ivan Kontul'
- Oscar Marchhart
- Martin Martschini
- Alexander Wieser
- Silke Merchel

Data Acquisition and Reduction
- Luca Conversi
- Francisco Ocaña
- Luca Buzzi
- Dan Alin Nedelcu
- Adrian Sonka
- Florent Losse
- Philippe Dupouy
- Korado Korlević
- Dieter Husar
- Jost Jahn
- Damir Šegon
- Mark McIntyre
- Ralf Neubert
- Josselin Desmars
- Kévin Baillié
- Sébastien Bouquillon

Targeted Fireball Observations and Strewn Field Search
- Christophe Bernard
- Vincent Coudé du Foresto
- Frédéric Danoix
- Erwin Dehouck

- Victoire Devillepoix
- Jean-Louis Devillepoix
- Patricia Devillepoix
- Annick Drossart
- Pierre Drossart
- Claudine Dumont
- Damien Dumont
- Ellie Dumont
- Florent Dumont
- Jean-Louis Dumont
- Raphael Dumont
- Axel Favre
- Jean-Guillaume Feignon
- Andrew Greenway
- Larry Greenway
- Bernard Kieffer
- Jim Labenne
- Luc Labenne
- Juliette Laurent
- Michael Leblanc
- Loïs Leblanc-Rappe
- Thierry Legault
- Arnaud Leroy
- Clément Leroy
- Claire Loubiere
- Eric Maillot
- Gilles Munch
- Géraldine Rappe
- Dominique Richard
- Pierre Sans-Jofre
- Renaud Trangosi
- Yann Trotel
- Jean-Philippe Uzan
- Paul Wright

Thank you to all the FRIPON/Vigie-Ciel participants who contributed during the search campaign between February 13 and March 5th 2023. Only those who specifically agreed to be listed here are mentioned. If you participated in the field searches and would like your name to be included in this list, please contact us at vigie-ciel@mnhn.fr.

Many thanks to **Bil Bungay**, an English documentary filmmaker, who bought the largest fragment of the Saint-Pierre-le-Viger meteorite found by independent meteorite hunters and deposited it in the Muséum national d'histoire naturelle for study and exhibition. https://www.mnhn.fr/fr/actualites/une-nouvelle-meteorite-atterrit-en-galerie-de-mineralogie

FRIPON International Team
Jim Rowe, Andrew Smeley, Ashley King, Salma Sylla, Daniele Gardiol, Dario Barghini, Josep Maria Trigo-Rodriguez, Kike Herrero, Hasnaan Chennaoui Aoudjehane, Zouhair Benkhaldoun, Hervé Lamy, Emmanuel Jehin, Detlef Koschny, Bjorn Poppe, Andrés Jordán,

Rene Mendez, Katerine Vieira, Hebe Cremades, Olivier Hernandez, Mathieu Forcier

Additional information:

- *"Catastrophic disruption of asteroid 2023 CX1 and implication for planetary defence",* Egal et al., Nature Astronomy (2025)
- *"Recovery and planned study of the Saint-Pierre-Le-Viger meteorite: an achievement of the FRIPON/Vigie-Ciel citizen science program",* Zanda et al., 86th Annual Meeting of the Meteoritical Society (2023)

- https://espacepourlavie.ca/en/fall-and-recovery-asteroid-2023-cx1
- https://www.fripon.org/meteorites-found-after-observation-of-asteroid-2023cx1 - fireball-above-normandy-france/

- "Fall and recovery of Asteroid 2023 CX1": https://youtu.be/7kjliXyLiJ8?si=aJErRoGWROFfCEpH ● "Impact et analyse de l'astéroïde 2023 CX1": https://youtu.be/l0Yb0cfU4uw?si=cs4UKK4Z58ise6wY