

Meteorites in Brazil

The law as a guarantee for scientific research

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Abstract. Meteorites fall over Brazilian territory every day, but researchers do not have guaranteed access to those pieces. This paper aims to clarify the current legal scenario in Brazil and why there is a need for a specific law that should protect scientific research and national cultural heritage

Resumo. Meteoritos caem sobre o território brasileiro diariamente, no entanto os pesquisadores não têm garantia de acesso a amostras desses meteoritos. Esse trabalho tem como objetivo esclarecer o cenário jurídico atual no Brasil e porque é necessário uma lei específica que proteja as pesquisas científicas e o patrimônio natural Nacional

Keywords. Meteorites – Meteors – Meteoroids

1. Introduction

Every year, the international community's interest in space activities that seek to prospect natural resources in celestial bodies grows. The scientific importance of such missions is invaluable. The high cost involved in incursions, however, makes them a reality for few countries. On the other hand, the possibility of physical analysis of space resources is not restricted to what is extracted in situ. Meteorites found on Earth also bring important information from the Cosmos, which is why researchers must have guaranteed access to this material. However, the lack of specific regulation in Brazil means that many of these fragments are directly sold to foreign collectors, without research institutions having the chance to study them. This work proposes the definition of an efficient way to ensure that science professionals obtain samples of these pieces. Considering examples of foreign legislation and practical cases (VZV2020), this work explores the peculiarities of the subject and indicates that only a Federal Law can function as a reliable guarantor of scientific interests, even if it accommodates the claims of various sectors involved in the search and collection of meteorites in the Brazilian territory.

2. Who finds the meteorites ?

When a meteorite falls over Brazil, three main actors are ahead of the searching process: (a) residents of the affected area; (b) collectors and dealers; (c) researchers.

Most of the time, one of them will be the first legal owner of a meteorite. However, each of them has particular interests in meteorite prospection. The residents aim to find and sell the space object; the collectors and dealers intend to find pieces by themselves or buy from the residents to later put the meteorites on their collections or in the market. Finally, the researchers have the only and noble intention to find or even try to buy the meteorites to study them.

The problem is that Brazilian researchers do not have financial support from their institutions to buy meteorites. So if they do not find the meteorites fallen on the land, they will probably

not have the resources to acquire the pieces. This situation leads to an unbalanced scenario between individual and scientific interests. While the residents, collectors, and dealers are successful in their objectives, only the researchers may not get what they need. And why is that so?

3. There is no specific Law in Brazil

In Brazil, there is no specific law to regulate the meteorite's property rights. So, when they fall on Brazilian soil, those space objects are treated by the Civil Code like any other regular thing without a previous owner. They are called "res nullius", or nobody's thing unless they fall inside a private or state property. It is good to have the right to appropriate meteorites, but it is also unfair that a so important activity as scientific research has no preferential access to those pieces.

An emblematic case happened in the year 2020, when several meteorites fell over the city of Santa Filomena, in the north-east of Brazil. The locals found dozens of fragments, made their findings public, and almost instantly, their city was full of foreign collectors and dealers. At that time, the local authorities did not know if the market installed was legal. There were questions if the meteorites were not a state's property. There was also the feeling that professionals should study the cosmic pieces before being sold or leaving the country.

This case led to significant discussions about the subject. Astronomers, Geologists, Lawyers, and politicians started thinking about ways to protect the scientific interests over meteorites.

4. Brazilian Laws

The Brazilian Constitution allows the creation of laws on specific themes. So, two bills were presented in the House of Representatives. One of them, known by the number 4.471/2020 (Camara dos Deputados a), keeps the meteorites found in Brazil in private hands but allows the state to ask the pieces for a limited time if there is interest in researching them. The other bill, registered under the number 4.529/2020 (Camara dos Deputados b), aims to create what it has called Brazilian Scientific Heritage

from Space. By this bill, all the meteorites found in Brazil would be a property of the state. So there is a bill that defends private property, and on the other hand, there is another text that advocates for state property over meteorites. Which path is the best?

It is true that if no one finds a meteorite, there is no meteorite to be sold, bought, or studied. Therefore, it is essential to be aware of the importance of people who find and remove meteorites from the ground right after they fall. As it is known, the residents of the affected areas are usually the first group to reach the meteorite, aiming to sell them later. So if all those space fragments become State property, the residents may not have the same motivation to search for the meteorites. Thus, a future law on meteorites' property rights needs to address this issue to assure meteorites' discoveries. Having this set, lawmakers can start thinking about how to protect scientific and national interests.

5. Suggestions to Lawmakers: Meteorites as Brazilian Cultural Property

As the two bills are under the analysis of the House of Representatives, their text still can change. Groups of Brazilian professionals and specialists have been studying ways to protect scientific interests and writing suggestions to lawmakers to help create the most efficient law possible. The most significant outcomes from these groups were: (a) the consensus of becoming mandatory to the meteorites' owners to give a small part of each piece to scientific institutions; (b) the need for a National Register of meteorites; (c) the prohibition on exporting meteorites without previous national registration; (d) the definition of meteorites as space resources fallen on Earth without human interference; and (e) the categorization of meteorites as Brazilian Cultural Property to put them under the protection of the UNESCO's 1970 Convention (UNESCO1970)).

There is a great expectation that, not far from now, one of those bills could become the first meteorites' property rights law in Brazil. If that happens, Brazilian scientific research on meteorites is guaranteed for the future.

Acknowledgements. The authors would like to thank several colleagues from the National Observatory, Itajuba, Brazil, the National Institute for Space Research, Sao Paulo, Brazil, the National Museum, Rio de Janeiro, Brazil, and the Brazilian Bar Association, Santos and Distrito Federal, Brazil for discussions on the topic.

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