



## My Story:

### Kaiser de Souza, Marine Geologist

*Chief, Division of Marine Geology, Geological Survey of Brazil, Ministry of Mines and Energy*

In 1993, I was busy completing post-doctoral work at the Federal Institute of Geosciences and Natural Resources in Germany, when I learned that the French prospector IFREMER/AFERNOD (*Institut Français de Recherche pour l'Exploitation de la Mer and Association Française pour l'Étude et la Recherche des Nodules Océaniques*) was seeking applications to take part in a 12-month training programme related to international seabed mineral prospecting.

I was immediately interested. Not only would the training present an opportunity for me to learn more about mining and exploration of mineral deposits in the deep sea; I would also gain insight into how and where these deposits were formed, and the techniques being used to evaluate them for metal content.

I was very pleased when my application was accepted. On 1 October 1993, I began the first phase of the programme at the *Centre d'Enseignement Supérieur en Exploration et Valorisation des ressources minérales* in Nancy, France. Over the next six months, I completed courses about mineral deposits and various mining operations, and the treatment methods and data processing that are used to study these deposits. I also learned how to analyze all the issues linked to mineral deposits, such as economics, tax law, and mining business jurisdiction. In this part of the programme, I had access to the most advanced knowledge and techniques being used in mining research and by mining geologists. This provided me with a solid basis of knowledge for the remainder of the training programme.

The second phase was led by IFREMER from 1 April to 30 September 1994. During this time, I completed a synthesis of the exploration work on polymetallic nodules that had been carried out by IFREMER/AFERNOD over 25 years. The synthesis was presented on 19 posters with detailed explanations. I also participated in a month-long oceanographic research cruise onboard the *L'Atalante* to study the morphobathymetric and geophysical coverage of New Caledonia's exclusive economic zone in order to identify the areas of greatest economic interest. During the cruise, I gained experience using different ocean exploration methods, oceanophysical measuring instruments, and the on-board data-processing systems. I also learned how to plan and implement a research cruise.

In the final phase of the training programme, I put into practice all of the lessons I had learned and experience I had gained by drafting a project paper to explore and evaluate the polymetallic nodules of the International Seabed Authority's reserved mining areas. This project considered the time involved, and approximate cost of at-sea operations, before and after mining operations would begin.

Upon completion of the programme, I was recruited by the Brazilian Government to serve as a scientific expert on ocean resources' affairs at their Ministry of Science and Technology. This was a great opportunity to apply my former professional experience, my education, and the new knowledge I had acquired during the IFREMER training.

So, in 1995, I returned home to assume this post for the next two years. In this position, I worked with technical staff from other ministries of the Brazilian government to expand the *National Programme for the Evaluation of the Mineral Resources Potential of the Brazilian Continental Shelf*. I also participated in the development of other national programmes and served as the scientific expert member of the Brazilian Delegation to the International Seabed Authority.

In November 1997, I was recruited as a marine geologist for the International Seabed Authority Secretariat. My duties included assessing and evaluating polymetallic nodule resources of the Authority's reserved areas, and analyzing data from contractors related to prospecting and exploring the international seabed. I also helped to organize meetings and workshops for scientists and other participants – and even lectured at one training programme to pass on my experiences to researchers entering deep-sea scientific fields.

My day-to-day activities exposed me to different techniques of seabed mineral resource prospecting, exploration and exploitation. I expanded my knowledge and expertise of marine data acquisition, processing, management, and interpretation. I also learned more about the regime governing the sea and oceans.

By December 2004, I was ready once again to return to my home in Brazil. I was offered, and I accepted, my current position as the Chief of the Division of Marine Geology at the Geological Survey of Brazil, which is part of the Brazilian Ministry of Mines and Energy.

Today, my responsibilities are focused on the implementation of the *National Programme for the Evaluation of the Mineral Resources Potential of the Brazilian Continental Shelf*. This includes systematic projects designed for the geological mapping of the Brazilian continental shelf as well as specific projects for the research of marine mineral resources, such as offshore diamonds, gold, heavy minerals, phosphorites, sand and gravels. At the same time, I have worked on proposals for scientific research in the international seabed area of the South Atlantic Ocean, and have participated on various national boards, commissions and working groups as the technical and scientific expert in marine mineral resources affairs.

I keep in contact with my former colleagues at the Authority, as well as contractors, scientists and other researchers in international seabed issues each year when I attend the Authority's annual sessions and participate in their workshops.

My education and the initial training programme in 1993 have brought me far in my career as a marine geologist. Providing opportunities to participate in training, courses, and hands-on research and analysis is an important initiative for the International Seabed Authority Endowment Fund to continue to generate for future scientists around the world.