

Research of Helium Isotopes in Taiwan: The Legacy of Dr. Tsanyao Frank Yang

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Helium isotope systematics is a powerful proxy to distinguish fluid origins and conveys fruitful geological information. In the past several decades, this robust isotope systematics had offered pivotal knowledge on many key issues in Earth and planetary sciences. It revealed essential geological information of Taiwan as well. Taiwan is located on the junction of two subduction systems-Ryukyu Arc and Luzon Arc. The geotectonic setting is complex and intriguing.

Dr. Tsanyao Frank Yang was the pioneer of gas geochemistry studies in Taiwan. He established the first gas geochemistry laboratory in National Taiwan University in 1998 and started exploring all possible research topics on and around this tectonic-active island. In the past two decades, his research covered volcanic/hydrothermal gas studies, volcanic activity monitoring, gas hydrate exploration, soil gas as a tool to locate fault traces, soil gas flux measurement, earthquake precursory, mud volcanoes, low-temperature geochronology and many more. He died of pancreas cancer in March 2015. He was a warm and enthusiastic mentor, a prolific scientist and a great friend. He will always be remembered.

Here we present Dr. Yang's achievement on helium isotopes studies in Taiwan throughout his research career. We integrate all the research results from his team and summarize the observations. We will show the distribution of helium isotope ratios in Taiwan and its implications on tectonic settings.

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