

Scientific and Human Activities During Cave and Karst Explorations in Laos

Claude MOURET

Abstract

Modern cave and karst investigations in Laos started in 1991, when the author made a first three-week reconnaissance of the Khammouane Karst (Khammouane, Borikamsai and Savannhaket Provinces). Subsequently, he organised two more reconnaissance trips (1993-1994) and 9 caving expeditions to this karst, with a team of seasoned fellows: in 1992, and yearly from 1994 to 2001. Karst studies were also conducted in other areas, during more sporadic, shorter, periods: Luang Prabang (1992), Savannakhet, Saravane, Bolovens Plateau area (1994), Plain of Jars, Muang Kham-Nong Het area, Sam Neua and Viengsai area, Vangvieng (1998), Luang Prabang, Nam Ou, Muong Ngoy (2000). Expeditions by other teams are not included here.

All the work has always emphasized scientific aspects, such as in the Khammouane Karst, where this was shared by team members, according to their preference and availability:

- geology: stratigraphy and lithology of the Khammouane carbonate and the surrounding formations, diagenesis and thermal evolution, structural features, erosion periods and amount of erosion,
- paleokarsts: karst paleo-landforms and karst fills,
- surface karst studies: morphology, karst evolution, metrology (perhaps the largest recorded cave entrance),
- underground karst studies: cave exploration and mapping (more than 80 km), cave morphology, study of large chambers and large galleries, speleothem records, underground flow characterisation,
- hydrogeology: distribution of karst flows, hydrogeochemistry,
- atmospheric phenomena,
- karst flora,
- cave fauna studies: systematics and ecology,
- paleontology: remains of recent mammals (rhinoceros) in caves,
- prehistory: discovery of cave paintings,
- history: discovery of inscriptions on cave walls, especially in Sanskrit,
- paleo-ethnology: burial caves,
- speleo-ethnology: relations between caves and Man: search for food and water, mineral resources in caves, means of communication (underground paths, boating), uses of caves during wars, relations between local people and cave spirits, Buddhist cave temples, etc.,
- karst and cave protection: information and recommendations to officials and locals,
- publications: more than 50 publications are based on the explorations and studies.

Human aspects include:

- tourism: recommendations, promotion of the Nam Hin Boun and Nam Non Caves, construction of bungalows for tourists in Nam Hin Boun area (out of a village) by laotian friends, with a highly positive impact on local employment and development (including the construction of a primary school in a village) and a very large positive impact on the reputation of Laos.
- speleo-ethnology,
- teaching of techniques and good practices in speleology,
- development of respectful, excellent relations with the wonderful Laotian people,

In other karst areas, the main scientific activities performed are the following: analysis of karst morphology, gathering of information on underground karst and water flows, record of cliff wall paintings (Pak Ou, Nam Ou), study of Buddhist cave temples (Luang Prabang, Nam Ou, Muong Ngoy, Sam Neua, Vangvieng, Vientiane area in sandstone caves), investigation of relations between caves and Man (all areas) -specially the use of caves during the Vietnam War (Viengsai specially, Muong Ngoy, Muang kham, Plain of Jars, Saravane, Bolovens Plateau area). Human practices were also widely promoted.

We have also investigated the existence of caves in non-carbonate rocks, such as gypsum and sandstone (field), pagodite (a variety of kaolinite, in literis).