

Kobe started increasing steadily five months before the actual earthquake and peaked more than a month after the event. Similarly, concentrations of radon in groundwater increased some four-fold several months before and shot up to ten times just nine days before the January event³. Such co-seismic changes were observed by researchers of Kyoto University also during the 7–8 magnitude events that occurred in 1994. Hydrogeochemical changes of this nature have been noticed earlier in some of the Asian earthquakes also but the data have been mostly of a qualitative nature and no systematic monitoring or quantitative measurements of such precursors were attempted to be useful for early predictions.

Changes in the electromagnetic field (successfully used for prediction originally by Greek physicist Panayiotis Varostos), and emission of high frequency radiowaves have been noted in earthquake-prone areas. Monitoring of these phenomena had enabled prediction of earthquakes in southern California (January 1994) and Kobe in Japan (January 1995) (ref. 4).

1. Pierre F. Ihmlé and Jordan, T. H., *Science*, 1994, 266, 1547–1551.
2. Urumu Tsunogai and Hiroshi Wakita, *Science*, 1995, 269, 61–63.
3. Igarashi G., Saeki, S., Takahata, N., Sumikawa, K., Tasaka, S., Sasabi, Y., Takahashi, M. and Sano, Y., *Science*, 1995, 269, 60–61.
4. Proc. Annual Meeting of Am. Geophys. Union, California, 1995.

Herbivorous crocodile fossil

Chinese geologists, surveying for petroleum some three decades ago, came across a 120-million-year-old skeleton with unusual features, in the lower Cretaceous of Huei Province of central China, and baffled by the uncommon features of its build, tentatively identified it as a peculiar animal. Recently, the fossil was resurrected from the shelves of Toronto Museum and re-examined¹. It has now been identified as

belonging to crocodile family and has been named *Chimaerasuchus paradoxus*. The skeleton consisting of snout, lower jaw, shoulder girdle, 15 vertebrae, forelegs, hand, pelvis and thigh bones provided a very good reconstruction of the animal – about 3 to 3.5 feet long with forward-pointing nostrils (unlike the normal carnivorous ones with up-pointed nostrils). What was, however, surprising was its multicuspid molar teeth which strongly indicated that the crocodile was herbivorous. Quite unlike the sharp conical teeth of carnivorous crocodiles, *Chimaerasuchus* had relatively flat teeth with distinct cutting edge at the back – features specialized for a fibrous plant diet, and comparable to some of the mammals and mammal-like reptiles.

1. Xiao-Chun, Wu, Hans-dieter, Sues and Ailing, Sun, *Nature*, 1995, 376, 678.

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