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Using tritium (3H) and sulfur hexafluoride (SF6) to estimate groundwater residence times around the Angkor's ruins

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Tritium (3H) and sulfur hexafluoride (SF6) provide a technique for dating young groundwater with a residence times less than 60 y. We applied these traces to estimate groundwater dating around the Angkor ruins. The tritium and SF6 based groundwater ages showed clear areal variations in which residence times are relatively short (<20 y) in north area (Angkor ruins area) and long (20 to 40 y) in south area (Tonle Sap area). The increase of groundwater age from the north to the south is congruent with the distribution of the water table. However, the water chemistry of groundwater was quite different between the north and the south areas, suggesting that the groundwaters of both areas are maintained from the different groundwater flow system.

Keywords: Tritium, Sulfur hexafluoride, Groundwater age, Angkor's ruins