

ISOTOPIC DETERMINATION OF PRECIPITATION CONTRIBUTION TO GROUNDWATER

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An examination of oxygen and hydrogen isotopic compositions of precipitation in Northeast Asia from the IAEA/WMO precipitation data set reveals that many sites have a distinct seasonal deuterium excess pattern that could potentially provide a means for evaluating the relative importance of summer and winter recharge to groundwater. A comparison of deuterium excess values of groundwaters at Cheju Island, Korea with precipitation taken over a two year period from May 1995 to May 1997 indicates that rainfall during the rainy season (June - September) which contributes approximately 65% of the annual rainfall to the island, contributes about 67% of groundwater recharge. This implies that the isotopic composition of groundwaters nearly equals the mean weighted annual isotopic composition at the island and that no seasonal bias to recharge exists. This also implies that recharge occurs throughout the year and that evapotranspiration effects may be minimal. This situation contrasts with other environments where relatively thick soils overlay bedrock.