

# **Petroleum Seeps and Their Structural Control in North China Yellow Sea**

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Three hundred (300) seabed core samples were collected in the North China Yellow Sea to evaluate presence of petroleum charged structures. Sediment interstitial light and high molecular weight hydrocarbons were analyzed using headspace gas, TSF-aromatic, and K-V fingerprint analysis. Two major seepage areas have been identified, each with three seep sites: east and west seepage area.

The total gas concentration is less than 100ppm and wet gas fraction is less than 0.12(12%) in background of North China Yellow Sea. Total gas concentrations are from 786 to 1213 ppm and gas concentrations are between 0.20 and 0.26 in east seepage area, and from 622 to 893 ppm and gas concentrations are between 0.17 and 0.23 in west seepage area. The emissions maximum fluorescence intensity is from 374 to 1680 in east seepage area and 346 to 689 in west seepage area. The maximum fluorescence intensity excitation and emission wavelengths are from 228 to 232 nm and from 340 to 346 nm in east seepage area, and from 228 to 230 nm and from 340 to 343 nm in west seepage area. The K-V fingerprints show oil signature in east seepage area and gas signature in west seepage area.

The basin of North China Yellow Sea consists of east depression, middle rise, west depression in structure. Each depression is composed of several structures. The structures control the near surface expression, not only for the seepage areas, but also for the individual seeps.