## عنوان مقاله:

Analysis of Hyperspectral Imagery for Oil Spill Detection Using SAM Unmixing Algorithm Techniques

## محل انتشار:

فصلنامه علوم و فناوری نفت و گاز, دوره 6, شماره 2 (سال: 1396)

تعداد صفحات اصل مقاله: 16

## نویسندگان:

Ahmad Keshavarz - *Assistant Professor, Department of Engineering, University of Persian Gulf, Bushehr, Iran*

Seyed Mohammad Karim Hashemizadeh - *M.S. Student, Department of Telecommunication System, Islamic Azad University, Bushehr Branch, Bushehr, Iran*

## خلاصه مقاله:

Oil spill is one of major marine environmental challenges. The main impacts of this phenomenon are preventing light transmission into the deep water and oxygen absorption, which can disturb the photosynthesis process of water plants. In this research, we utilize SpecTIR airborne sensor data to extract and classify oils spill for the Gulf of Mexico Deepwater Horizon (DWH) happened in 2010. For this purpose, by using FLAASH algorithm atmospheric correction is first performed. Then, total 360 spectral bands from 183 to 198 and from 255 to 279 have been excluded by applying the atmospheric correction algorithm due to low signal to noise ratio (SNR). After that, bands 1 to 119 have been eliminated for their irrelevancy to extracting oil spill spectral endmembers. In the next step, by using MATLAB hyperspectral toolbox, six spectral endmembers according to the ratio of oil to water have been extracted. Finally, by using extracted endmembers and SAM classification algorithm, the image has been classified into 6 classes. The classes are 100% oil, 80% oil and 20% water, 60% oil and 40% water, 40% oil and 60% water, 20% oil and 80% .water, and 100% water

## کلمات کلیدی:

Oil Spill, Hyperspectral Imagery Unmixing Algorithms, Hyperspectral Toolbox, SpecTIR, SAM