**ABSTRACT SUBMISSION**

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**AUTHOR**

Title (Mr, Ms, Capt, etc.): Prof.

Family name: Seo

Firstname: Jiwon

IALA member organization: Ministry of Oceans and Fisheries, Republic of Korea

Postal address: 85 Songdogwahak-ro, Yeonsu-gu, Veritas Hall C-218, Incheon 21983, Korea

Telephone (including country and area codes)

Office: +82-32-749-5833 Mobile: +82-10-5446-7823

e-mail(s): jiwon.seo@yonsei.ac.kr

**ABSTRACT**

Title: Positioning Performance of the FERNS Loran Chains Observed in Korea

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Abstract: This paper presents the observed performance of the Far East Radio Navigation Service (FERNS) Loran chains. The monitoring station for the analysis in this paper is at Yonsei University, Incheon, Korea, where Loran signals from seven transmitters of three FERNS chains are observable. The FERNS Loran transmitters are modernized Loran-C transmitters that have not yet been upgraded to eLoran capability. Thus, the Loran signals do not have Loran Data Channel (LDC) that carries information to calculate the transmission time of the received Loran pulse in Coordinated Universal Time (UTC). Therefore, the “all-in-view” positioning method similar to GPS is not yet possible, and the traditional hyperbolic positioning needs to be utilized. However, unlike the traditional Loran-C positioning method, we applied the spatial and temporal Additional Secondary Factor (ASF) corrections to improve the positioning accuracy. This ASF correction method that is based on the Time Difference of Arrival (TDOA) measurements, which has been suggested by our previous paper, is different from the conventional eLoran ASF correction method that is based on the Time of Arrival (TOA) measurements. This approach is taken because TOAs cannot be directly measured with the current FERNS Loran transmitters. The observed performance is discussed with various combinations of transmitters.