ABSTRACT SUBMISSION –– SOUMISSION DE RESUME

**Topic No.: / Sujet n° : ------------------ or / ou**

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**Maritime Big Data Analysis of Ship Route Traffic Characteristics with MapReduce Processing**

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ABSTRACT / RESUME:

**Title :** Maritime Big Data Analysis of Ship Route Traffic Characteristics with MapReduce Processing

**Background/Objectives:** Previously, the assessment of ship route traffic was carried out using Automatic Identification System (AIS) data. However, the analysis of the AIS data of ship routes became problematic because of the volume of data and the difficulties associated with data access.

**Methods/Statistical analysis:** We propose the use of data acquired via the Port Management Information System (PORT-MIS) to overcome the aforementioned problems with data properties. Maritime big data is processed by, firstly, setting several gate lines in the ship route. These gate lines are then saved as Key-Value pairs. Secondly, these ship movement data based on the port facility are processed by the PORT-MIS DB Mapper and Reducer. Using the Key-Value results, hereafter, the authors conduct a variety of statistical analyses on the shipping route traffic.

**Findings:** PORT-MIS data is more appropriate to use as maritime big data for ship route traffic than AIS data, because PORT-MIS data makes it possible to prepare gate lines. A conversion algorithm for shipping route traffic is also presented.

**Improvements/Applications:** The results of this study can be used to analyze ship route traffic and carry out analyses of other big data from the ship route Key-Value database.

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