

Article

# Field corrosion monitoring in marine atmosphere by electrochemical noise

Da-Hai Xia <sup>1,\*</sup>, Shizhe Song <sup>1</sup> and Wenbin Hu<sup>1</sup>

<sup>1</sup> School of Materials Science and Engineering, Tianjin University, Tianjin 300354, People's Republic of China

\* Correspondence: dahaixia@tju.edu.cn.

**Abstract:** Electrochemical noise (EN) can be used in situ to investigate corrosion processes and to detect and monitor the corrosion of metallic materials in marine atmosphere. We developed several sensors and probes that can be used in field corrosion detection. EN data are largely influenced by the measurement mode, the surface area of the working electrodes, the electrolyte resistance, and the symmetry of the electrode system. Herein, the advantages and limitations of electrochemical kinetics, equivalent circuit, and shot noise methods for quantifying corrosion rates with EN are discussed.

**Keywords:** Electrochemical noise; marine atmosphere; corrosion rates

---