

國產自主化浮動式海氣象光達載具開發 - 實驗與實海域測試

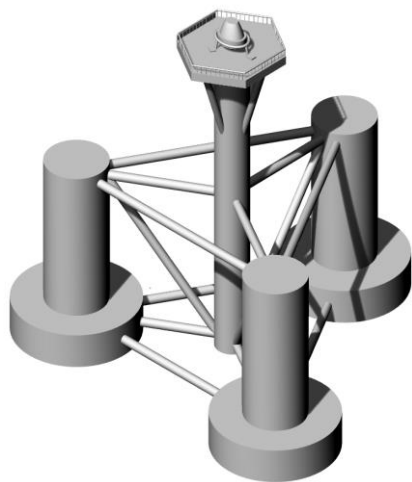
執行單位

國立成功大學水利及海洋工程學系

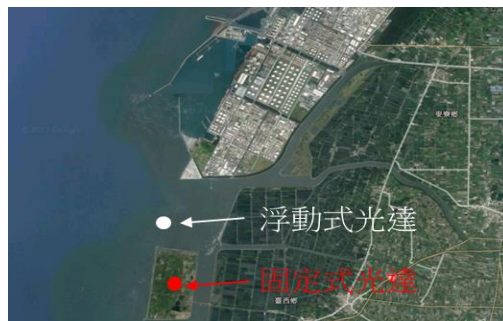
計畫主持人

楊瑞源 副教授

- 本計畫研發技術為國產浮動光達載具與系統整合，將應用於離岸風場海氣象資料調查，評估風資源與年發電量等。提供國內高機動性海氣象量測工具，解決固定式觀測塔施工空窗期過長與成本高昂等挑戰。



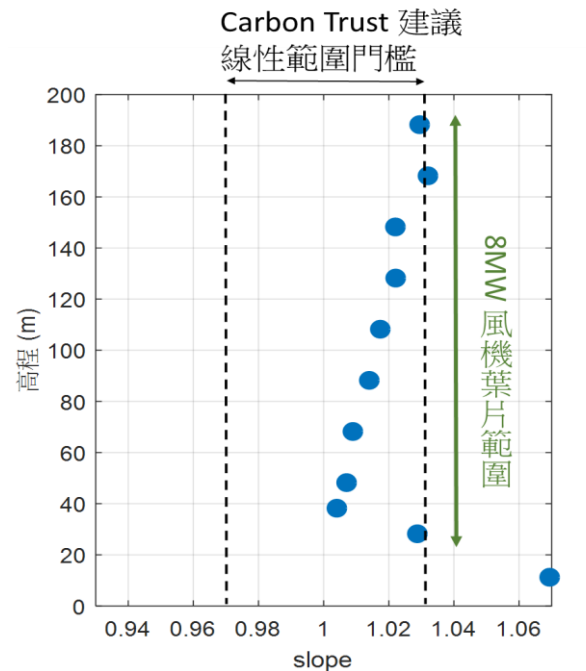
高耐海性載具設計
-專利準備申請中



2017/6/27實海域測試佈放點位



耐海性縮尺試驗



浮動光達與固定光達各高程
風速比對線性關係-符合業界標準

- **技術介紹:** 研發國產自主化的浮動式光達載具以及系統，建立浮動式光達國產化三大關鍵技術- 適合台灣海域之高耐海性載具、多元系統整合技術、浮動光達資料分析標準程序建構。
- **目前發展情形:** 研究團隊於106年6/27於雲林離島新興區外海進行浮動光達先期實海域測試，共連續量測18小時。以8MW風機葉片掃掠範圍為目標，各高程風速與岸上固定式光達同步量測，兩者風速呈高度相關性)。符合2016 Carbon Trust OWA 以及目前市售浮動光達商業標準所擬定的誤差範圍(0.97~1.03)。
- 結合財團法人金屬工業研究發展中心浮動式風機計畫，進行高耐海性載具設計與縮尺實驗測試。相關成果，由金屬工業研究發展中心、國立成功大學水工所共同申請科技部鏈結產學合作計畫，獲得補助。

Development of Domestic Floating Lidar-Based Vehicle and System -Laboratory Experiment and Field Test

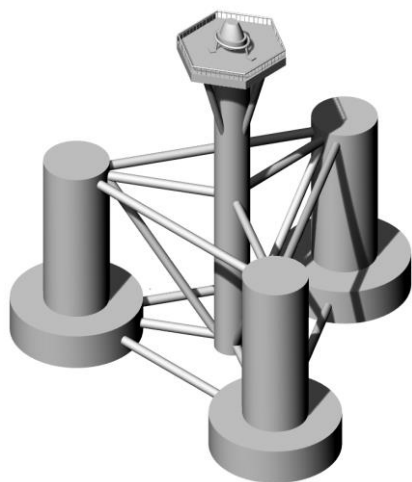
Execution Unit

Tainan Hydraulics Laboratory, National Cheng Kung University

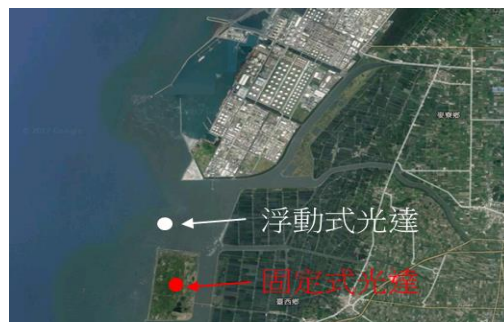
Project Director

Ray-Yeng Yang

- This project aims to develop high seakeeping vehicle and system integration for floating LiDAR. The applications include met ocean data measurement and to provide cost-effective/flexible solutions for offshore wind development.



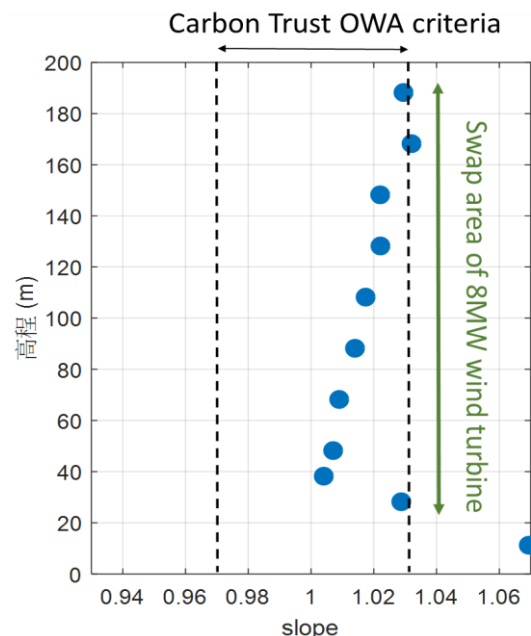
Design of high seakeeping vehicle. Patent is under preparation



2017/6/27 deployment of field test



Scaled-model test



Comparison of floating and fixed Lidar for wind speeds at different heights, which satisfies the industrial standard

- **Technology:** Three key technologies for a floating LiDAR are high performance of seakeeping vehicle, system integration and sensitivity analysis of wind data from floating LiDAR.
- **Current stage:** The 1st-phase field test was conducted in 2017/06/27 in Xinxing district near Yunlin Industrial Park, where floating and fixed Lidar system is set up to simultaneously measure wind speed for 18 hours. Within the swap area of 8 MW wind turbine, the linear slope between fixed and floating data satisfies the standard proposed by 2016 CarbonTrust OWA, which ranges from 0.97 to 1.03
- Based on the result of joint project of floating wind turbine between Metal Industries Research and Development Centre and NCKU, the key technologies are further applied to design floating vehicle and that results are financially supported by MOST project.