

CENTRE FOR JOINT WARFARE STUDIES



CENJOWS

CHINESE AUTONOMOUS CARGO SHIP

1. China's Autonomous Cargo Ship 'Jindouyun' Conducts Maiden Cargo Sortie. The prototype autonomous vessel named as 'Jindouyun 0 Hao' carried out its maiden trial cargo delivery sailing from Wanshan test range off Zhuhai coast in southern China on 15 December 2019. It's networked and distributed control systems and cyber-physical algorithms, enable the Cargo USV to carry out autonomous navigation, track management, obstacle avoidance, and controlled berthing, sailing and other decision-making functions. The digitised control technology and electric propulsion allow the onboard operating system to make decisions and implement courses of actions without human in the chain, while the shore-based center is able to exercise real-time ship supervision and direction. The fully battery-powered vessel will be able to sail 500 NM with single charge.



'Jindouyun' Autonomous cargo ship on maiden sea Sortie

2. **Comments.** The joint design and development project of World's first unmanned cargo ship, 'Jindouyun' (magical cloud) by Zhuhai Municipal Government, China Classification Society (CCS), Wuhan University of Technology, and Yunzhou Tech (Oceanalpha), also commenced at the Zhuhai test range in 2017. The 'Jindouyun' project team plans to carry out multi-ship collision avoidance and autonomous berthing experiments, followed by demonstration of inland river autonomous navigation, in the next phase. The team eventually wants to make the ship compliant with 'fourth degree of autonomy' under a scoping methodology for autonomous shipping being prepared by the International Maritime Organisation (IMO).¹ Chinese maritime administrators will thereafter explore the feasibility of commercial operation of autonomous ships in the transport, supply and marine sectors in due consultation with the IMO.

Source: [http:// www.ecns.cn/hd/2019-12-16/detail-ifzrtayn1412739.shtml#1](http://www.ecns.cn/hd/2019-12-16/detail-ifzrtayn1412739.shtml#1);
http://www.cityofzhuhai.com/2019-12/17/c_432497.htm

¹ *'Fourth degree of autonomy' as per guidelines for autonomous shipping being prepared by IMO, refers to fully autonomous ship, wherein its onboard operating system is able to make decisions and determine actions by itself. For details, see <http://www.imo.org/en/MediaCentre/HotTopics/Pages/Autonomous-shipping.aspx>.*