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中国气象局卫星广播系统 (CMACast) 设计

Design of CMA's Broadcast System for Meteorological Data—CMACast

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摘要:

CMACast是中国气象局基于DVB S2标准的新一代卫星数据广播系统,使用亚洲卫星4号星一个完整的C波段转发器对中国及亚太地区进行气象资料、卫星遥感资料及流媒体视频的广播。该文详细介绍了CMACast的系统结构、主要功能和关键技术,并与中国气象局现有的3个广播系统PCVSAT, DVB S和FENGYUNCast以及EUMETCast, GEONETCast Americas进行了比较。比较结果表明:CMACast覆盖面广,技术领先,功能强大,是目前世界领先的卫星数字广播系统。预计2012年初CMACast全面建成并投入使用,CMACast系统建成后,将全面整合PCVSAT, DVB S和FENGYUNCast 3个系统的业务和用户,成为中国气象局唯一的广播系统,并作为GEONETCast的亚洲区域中心,向亚太地区进行GEOSS数据的广播。

关键词: [卫星数据广播](#) [DVB](#) [CMACast](#) [GEONETCast](#)

Abstract:

Due to broad coverage, low cost user equipment and easy installation, data broadcast system based on commercial communication satellite has been considered to be the most effective way for data dissemination worldwide. CMA has implemented three satellite broadcast systems, PCVSAT, DVB S and FENGYUNCast since 1998. PCVSAT and DVB S, which are Ku band systems covering China and surrounding area, are primarily used to distribute land and air based observation data and products. FENGYUNCast, which is a C band system covering Asia and part of the south western Pacific area, is primarily used to distribute space based observation data and derived products from Fengyun series satellites of China. FENGYUNCast becomes part of GEONETCast Centre of GEONETCast Network in Asia Pacific region in 2008. Currently PCVSAT, DVB S and FENGYUNCast have 2400, 700 and 200 users respectively. The coexistence of three broadcast system causes inefficiency and inconvenience to both CMA and users. In 2008, CMA started to build a new system, CMACast, to consolidate the services and users of the three systems together. CMACast is a multimedia dissemination system based on the second generation Digital Video Broadcast (DVB S2) technology with both file and multimedia transmission capability, employing a whole 36 MHz C band transponder of AsiaSat 4 and the transmission capacity can reach up to 70 Mbps. Besides high data rate, CMACast is expected to enhance user management and data exchange cooperation with other regional GEONETCast Network Centres (GNC), including EUMETCast and GEONETCast Americas. CMACast is not only the main component of CMA national and international communication system, but also the main component of WMO IGDDS and GEONETCast. The infrastructural, main function and key technology of CMACast and its comparison between PCVSAT, DVB S, FENGYUNCast, EUMETCast and GEONETCast Americas are introduced. Infrastructural introduction includes system architecture, coverage and capacity. Main function includes file broadcast, multimedia broadcast, data exchange, user management and data reception. Key technology includes DVB S2 standard, bandwidth sharing mechanism and dynamic data encryption mechanism. The comparison result indicates that CMACast is a leading satellite data broadcast system in the world with broad coverage, advanced technology and multiple functions. CMACast is on trail operation in the middle of 2011 and will operate simultaneously together with PCVSAT, FENGYUNCast and DVB S from June to October in 2011, when all the users of the current three systems will transit to CMACast. After that, the current three systems will be closed and CMACast will be the only operating data broadcast system of CMA.

Keywords: [satellite data broadcast](#) [DVB](#) [CMACast](#) [GEONETCast](#)

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