

**AVIATIONWEEK**  
& SPACE TECHNOLOGY



**Digital Extras** Access exclusive online features from articles accompanied by this icon.

- 7 Feedback
- 8 Who's Where
- 10-11 First Take
- 12 Up Front
- 13 Going Concerns
- 14 Inside Business Aviation
- 16 Airline Intel
- 17 Leading Edge
- 18 In Orbit
- 20 Washington Outlook
- 64 Classified
- 65 Contact Us
- 65 Aerospace Calendar

**COMMERCIAL AVIATION**

- 22 **Uber unveils** plans for electric vertical-takeoff-and-landing air-taxi demos in Dallas, Dubai in 2020
- 24 **Alitalia's fight** for survival highlights how fragmented European airline market benefits low-cost carriers
- 26 **Global market** opens for Comac C919 as European Aviation Safety Agency works on certification
- 36 **Boeing begins** 737-9 flight tests, hoping for smooth development to help counter Airbus A320neo
- 37 **China Southern** boosts its buildup in Western China, planning more services to Europe from Urumqi
- 39 **Cathay Pacific** parent appoints a new CEO to implement the airline's transformation plan

**36**

Boeing is hoping that flight-testing of the 737-9—pictured at Boeing Field after its initial flight, with the first 787-10 in the background—will be as drama-free as the 737-8's flight trials.



**SPACE**

- 28 **China launches** its largest spacecraft, Tianzhou 1, furthering its plan to build a space station



40

**TECHNOLOGY**

- 29 **Holland's Ampyx Power** prepares to demonstrate a tethered UAV-based wind-energy system

- 46 **Electric propulsion** developments feed visions of aircraft being used for daily commutes and short trips

**DEFENSE**

- 30 **NATO redoubles** deterrence posture at the Eastern European front, on the ground and in the air
- 32 **U.S. Air Force** wants to upgrade legacy airlifters with laser-based missile defense, modern comms
- 34 **UK deployment** expands U.S. Air Force F-35 experience in exercises with RAF Typhoons, Dutch F-16s

**AERONAUTICAL ENGINEERING**

- 40 **NASA tests** of Lockheed Martin design for low-boom supersonic X-plane focus on inlet performance
- 41 **Technology demos** will continue even as Europe's Clean Sky 1 research program draws to close

**AIRLINE OPERATIONS**

- 42 **American Airlines** moves to data-driven decision framework to minimize disruption of operations
- 43 **Information tech** leaps help airlines better manage and communicate with customers about disruptions

**ON THE COVER**

*ViaSat-2, the world's highest-capacity communications satellite, will boost ViaSat's drive to prove that space-based systems can compete with terrestrial broadband internet providers (page 60). The \$600 million spacecraft, pictured at Boeing Satellite Systems in El Segundo, California, is awaiting launch on an Ariane 5. Boeing/ViaSat photo. Also in this issue: Uber's plans to launch on-demand electric vertical-takeoff-and-landing air-taxi services (page 22), a look at the C-919's sales prospects as the Chinese airliner is readied for its first flight (page 26), and a guide to Western air-launched weapons (page 54). Aviation Week publishes a digital edition every week. Read it at [AviationWeek.com/awst](http://AviationWeek.com/awst) and on our app.*





34

**44 Emergency procedures** of Swiss International Airlines tested by flight diverted to Northern Canada



### UNMANNED SYSTEMS

**48 Demo flights and** limited approvals build confidence in safe beyond-line-of-sight UAS operations



50

**50 Fast-growing** counterdrone market capabilities are stratifying in response to customer needs

**52 U.S. Marine Corps** search for fast expeditionary combat drone energizes vertical-lift community

**53 Aurora Flight Sciences** hopes its long-endurance Orion UAV will become a deployed military system

### AIR-LAUNCHED WEAPONS

**54 Next-generation** bombs and missiles will have greater cyber-resiliency and autonomy

### SATELLITE COMMUNICATIONS

**60 Exponential advances** in bandwidth fuel satellite challenges to terrestrial broadband services

**62 ViaSat is pushing** the envelope in satellite design, having taken over the entire system architecture

### VIEWPOINT

**66 To revive the search** for MH370, offer a bounty to encourage entrepreneurs to join the hunt



44



30

TONY OSBORNE, AW&ST