



Agenda Item 6: Other business

PROJECT LOON – FLOATING CELL PHONE TOWERS IN THE SKY

(Presented by CANSO)

SUMMARY

This paper presents an update on Project Loon, a heavy free unmanned balloon network which intends to bring the internet to underserved parts of the world. It will outline recent achievements and plans forward, and following on from a recent ICAO State Letter, seek assistance from Civil Aviation Authorities and Air Navigation Service Providers (ANSPs).

1. INTRODUCTION

1.1. Google directs their internal Research and Development funds toward solving worldwide challenges. Loon seeks to support education, investment, remote medical information and emergency services by expanding the internet capability to areas of the world which are underserved. Google X recently joined the Civil Air Navigation Service Organization (CANSO) as a way to work in partnership with ANSP's worldwide.

2. DISCUSSION

Progress to Date

2.1. Loon began in 2013, and initially focused its resources on the science of the balloon itself (design, fabric, architecture) and the ability to use the winds to navigate to the areas of the world which need the internet services to improve the lives of citizens. As the project continues its research and development of the communications payload, it is moving into full demonstration/validation of the balloon's ability to operate in a geographic region of interest.

2.2. During the research and development phase, Loon significantly improved the balloon design, manufacture and launch procedure. The balloons are now robust, remaining aloft well beyond the targeted 100 days, and are launched through a custom developed auto-launcher, allowing rapid multiple launches. Loon fully complies with ICAO standards for heavy balloons, and has gone well beyond the safety requirements by adding several layers of safety equipment (including ADS-B) onboard the payload.

2.3. During the demonstration/validation phase, Loon combined publicly available sources of wind data with their own extensive flight data (over 950 balloons, 800,000 flight hours and 24 million flight kilometers), using its massive computer power to create models and simulations that enable much more efficient balloon navigation.

2.4. With a combination of this data and the smart technology used in the balloon itself, Loon balloons are able to change altitude to “catch” the winds moving at the speed and direction necessary to a given service area.

2.5. Loon is finalizing its Safety Management Plan (SMP) and formalizing its operations center known as Loon Mission Control (LMC), using best practices from around the world, in order to take the next operational steps.

2.6. Loon is planning a further series of Regional Demonstrations, focusing on underserved areas, partnering with local telecommunications authorities. Loon is actively seeking working relationships, as outlined in the ICAO State Letter, with key Civil Aviation Authorities and Air Navigation Service providers for overflight Letters of Agreement (LOAs), as well as possible launch and landing sites.

2.7. Loon remains grateful to the many States which have been supporting Project Loon, since inception. In order to continue to progress to operational internet service to underserved areas, overflight discussions and agreements are key.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) review the ICAO Secretary General’s recent State Letter (**Attachment A**), and
- b) noting Loon’s progress, work in partnership with Project Loon to improve internet capability to underserved parts of the world.

From: ANB Scanner ANBScanner@icao.int
Subject:
Date: June 17, 2016 at 9:43 AM
To: Esmeralda, Riza REsmeralda@icao.int
Cc: Pereira, Marisa MPereira@icao.int

Tel: +1 514-954-8219 ext. 5323

Ref: AN13/22.1-16/42

17 June 2016

Subject: High Altitude Operations of
Unmanned Free Balloons

Action required: To assess impacts, as necessary.

Sir/Madam,

1. I have the honour to draw your attention to Google Inc.'s "Project Loon", which aims to employ unmanned free balloons at high altitude to provide trans-global internet access.
2. As this first-of-its-kind project is being implemented and increasingly impacting the global airspace, I draw your attention to Annex 2 — *Rules of the Air*, Appendix 5, *Unmanned Free Balloons*. The enhancement of ICAO provisions applicable to unmanned free balloons is currently underway so as to provide scope commensurate for the future growth of this aspect of civil aviation.
3. Should you receive a request indicating the potential for these high-altitude balloon operations within your airspace, enclosed is – for informational purposes only – a briefing sheet prepared and furnished by Google on the project, as well as samples of some individual Member States' standards and procedures with regard to unmanned free balloons. Combined with the relevant SARPs noted above, I am confident that this information will prove useful to assist you with assessing mechanisms to support safety and flight operations within your airspace.

Accept, Sir/Madam, the assurances of my highest consideration.



Fang Liu
Secretary General

Enclosures:

- A — Project 'Loon' briefing sheet
- B — Examples of individual State standards and procedures for unmanned free balloons

