四季安安

wish you peace and health in all four seasons

Photo: Theunis Piersma

Photo: Theunis Piersma, Adriaan Dokter & Jimmy de Fouw

Photo: Rob Butler

Photo: Rob Buiter

Theunis Piersma

Rudi Drent Chair in Global Flyway Ecology

Bringing Good Connections to Life

Photo: Jan van de Kam


connections
between people
connections
between birds
SCIENCE **CONSERVATION**
connections with birds
PUBLIC OUTREACH
connections between birds & environments
Photo: Jan van de Kam

Individual Colour Marks:
demographic book-keeping
& migration

Solar-powered Satellite Tags
migration + habitat use
& seasonal demography

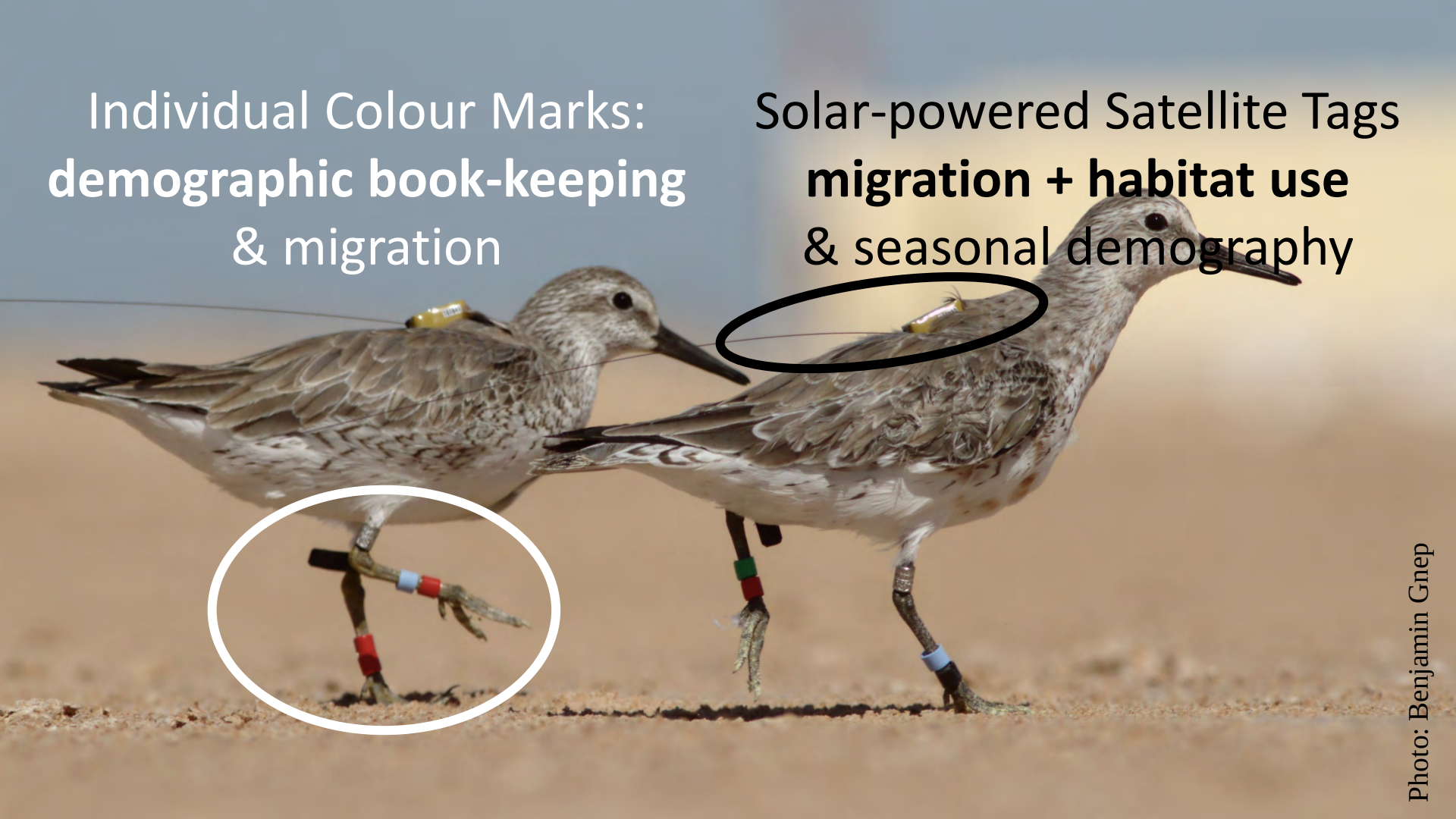


Photo: Benjamin Gnep

Individual Colour Marks: **demographic book-keeping** & migration

Photo: Benjamin Gnep

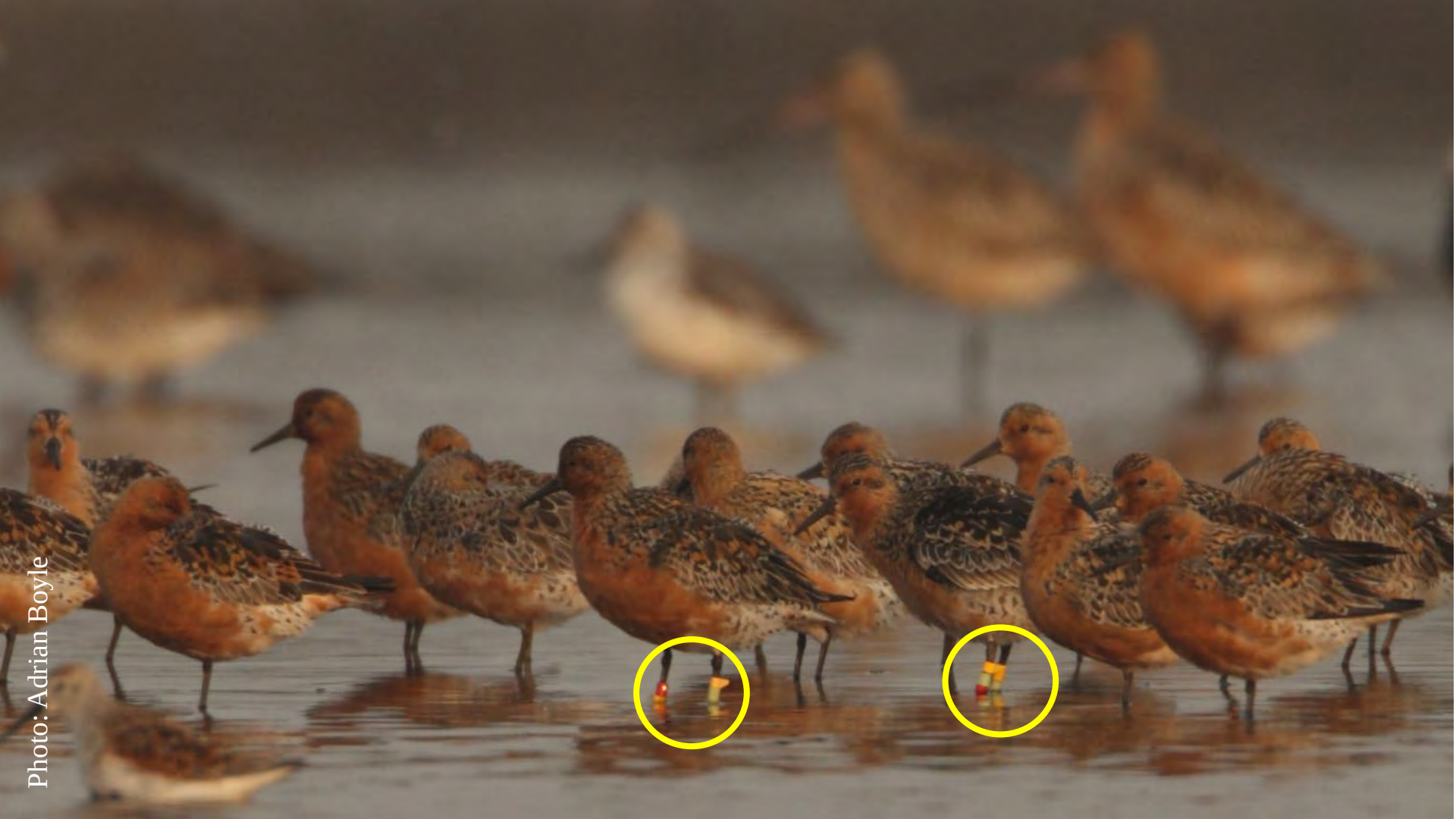
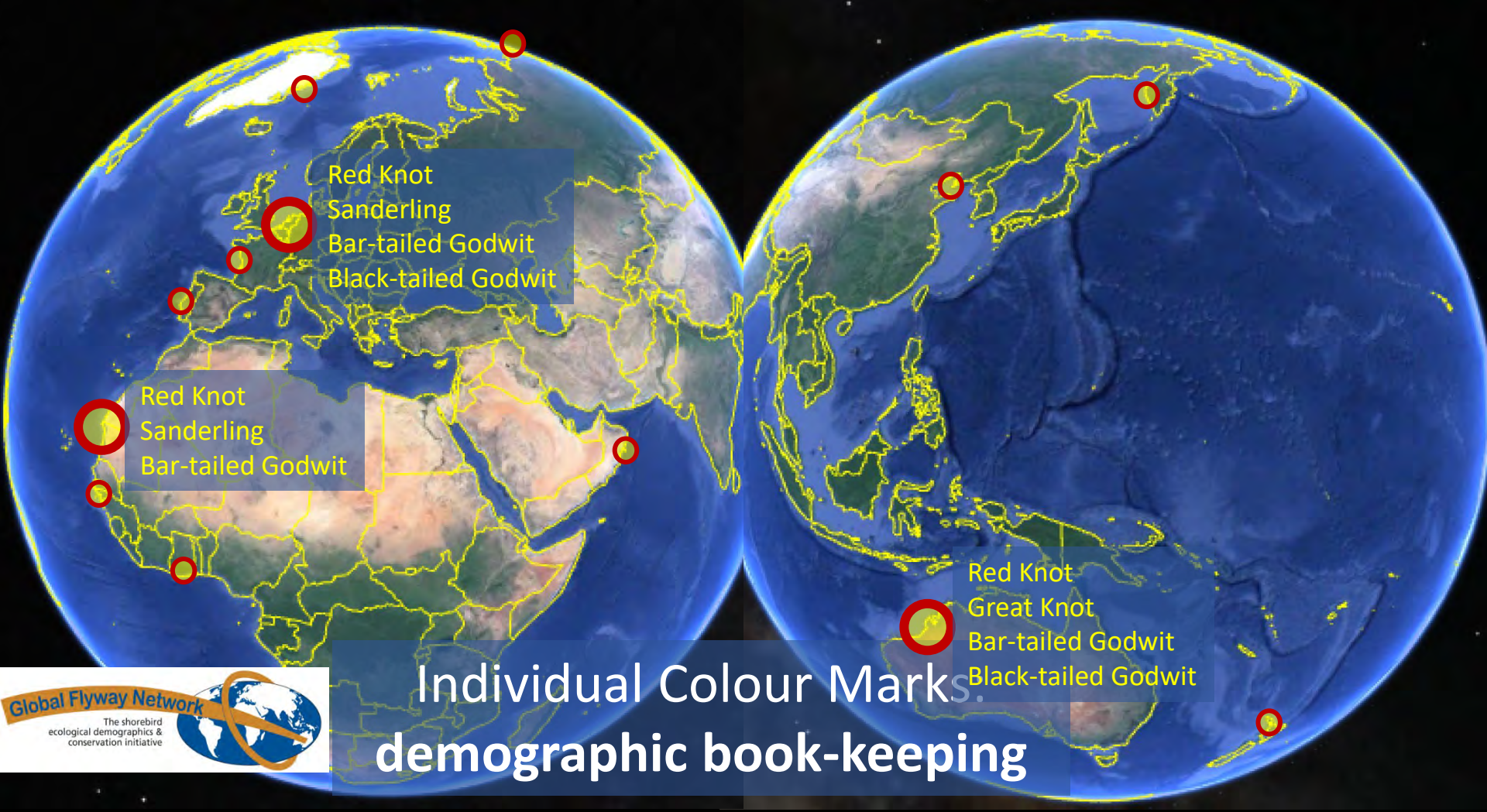


Photo: Adrian Boyle



Global Flyway Network
The shorebird ecological demographics & conservation initiative

Individual Colour Marks:

demographic book-keeping

Photos: Wlodek Miessner & Rob Buiter

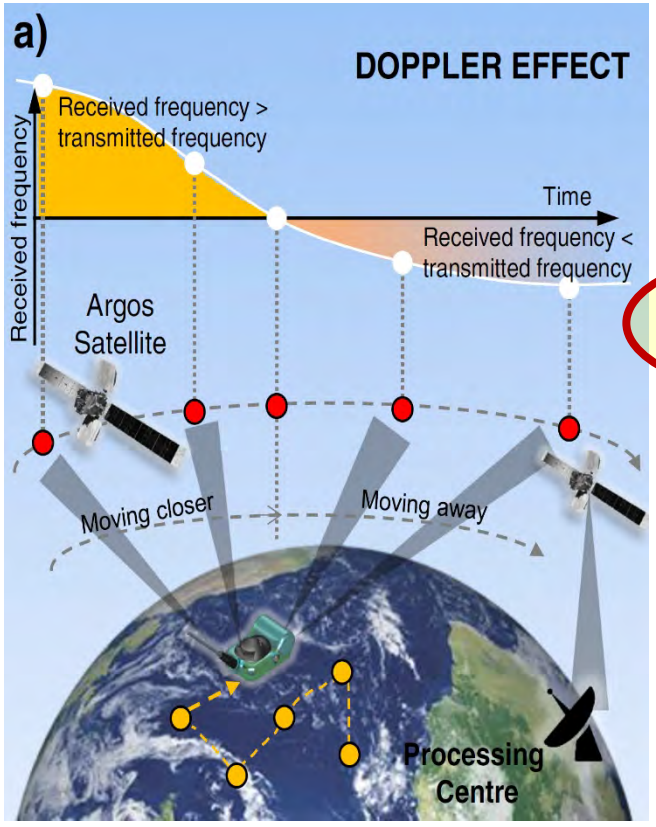
Solar-powered Satellite Tags

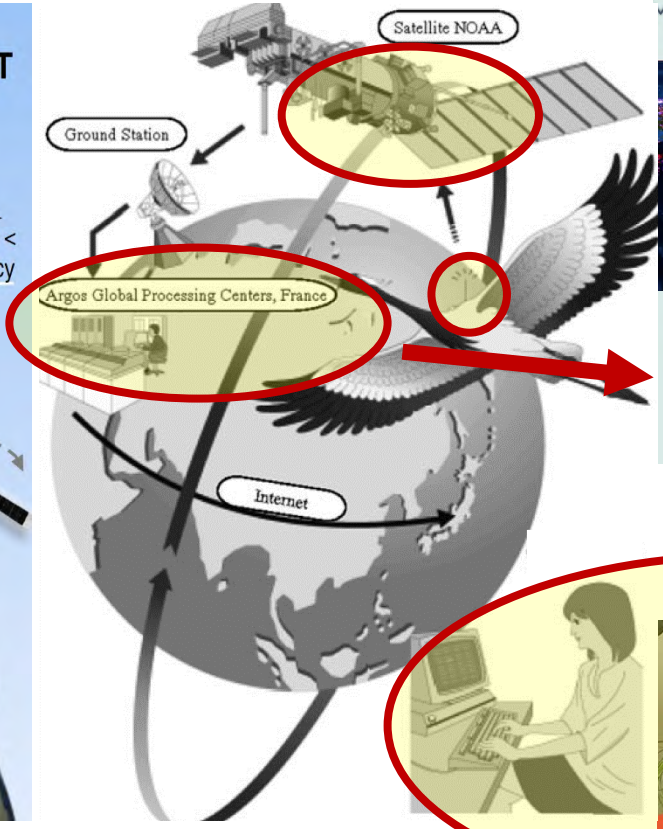
migration + habitat use

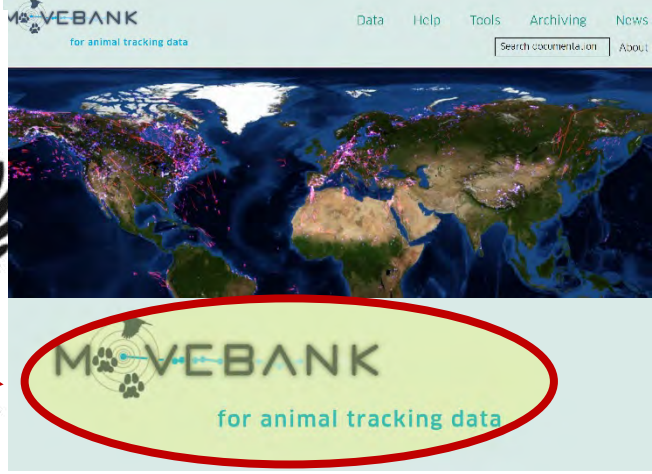
& seasonal demography

Global Flyway Network

The shorebird ecological demographics & conservation initiative

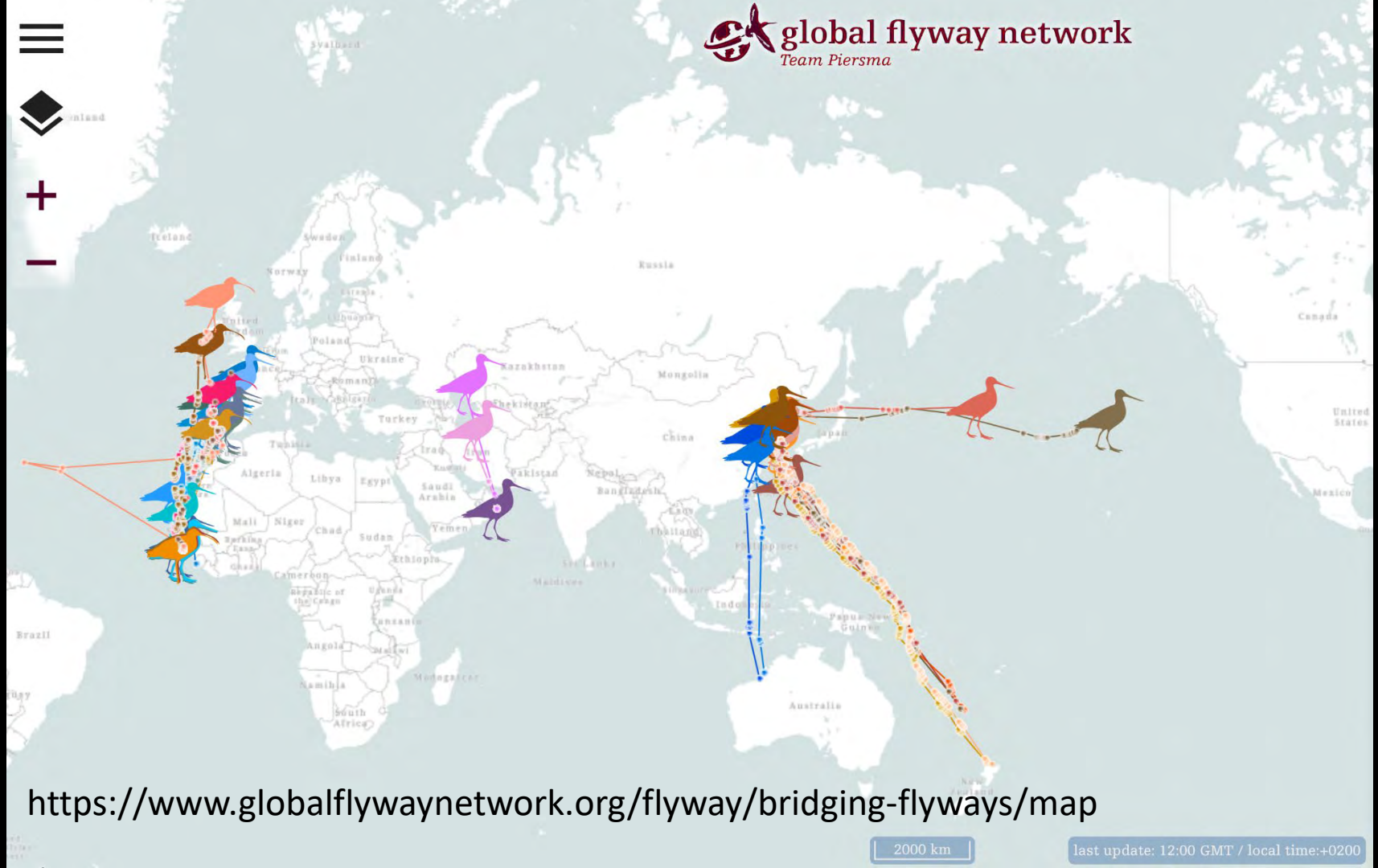






Carter *et al. Movement Ecology* (2016) 4:25.
DOI 10.1186/s40462-016-0090-9

Higuchi & Pierre *Landscape Ecol. Engin.* (2005) 1: 33-42.
DOI 10.1007/s11355-005-0002-4
Artwork: Michiko Shigehara



https://www.globalflywaynetwork.org/flyway/bridging-flyways/map


Microwave Telemetry, Inc.
Paul Howey
Photo: Theunis Piersma

Photos: Jan van de Kam

Photo: Jan van de Kam

Photo: Jan van de Kam


Yukon Delta
May 5 - August 30
Yalu Jiang
March 24 - May 1
Okinawa
E7
a record breaker
3 flight 10,219 km
6,459 km
11,570 km
Total 28,248 km
Hawaii
Bougainville
Fiji
New Caledonia
Miranda
Departed March 17
Returned September 7

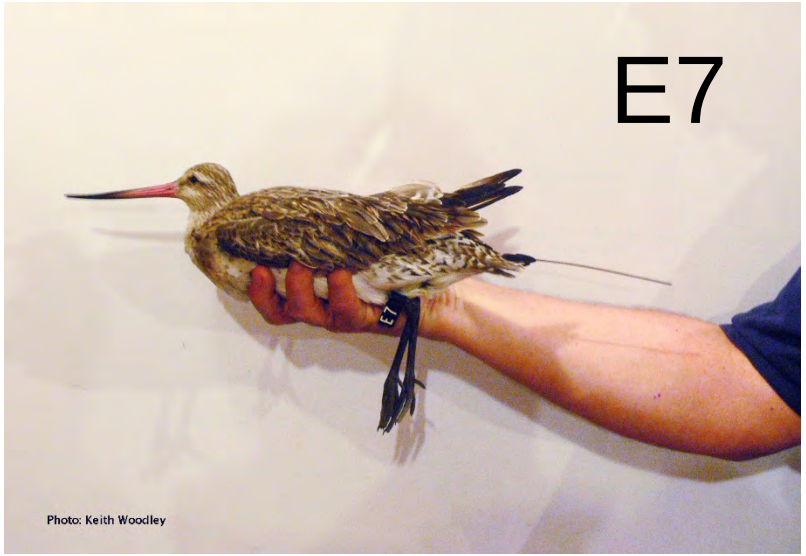

E7
Photo: Keith Woodley

Photo: Jan van de Kam


Footage: Cornell Laboratory of Ornithology, Ithaca, USA


Footage: Cornell Laboratory of Ornithology, Ithaca, USA

Photo: Jan van de Kam

Photo: Jan van de Kam

Photo: Theunis Piersma

Photo: Theunis Piersma

Photo: Theunis Piersma

Photo: Jan van de Kam

Photo: Bob Gill


Yukon Delta
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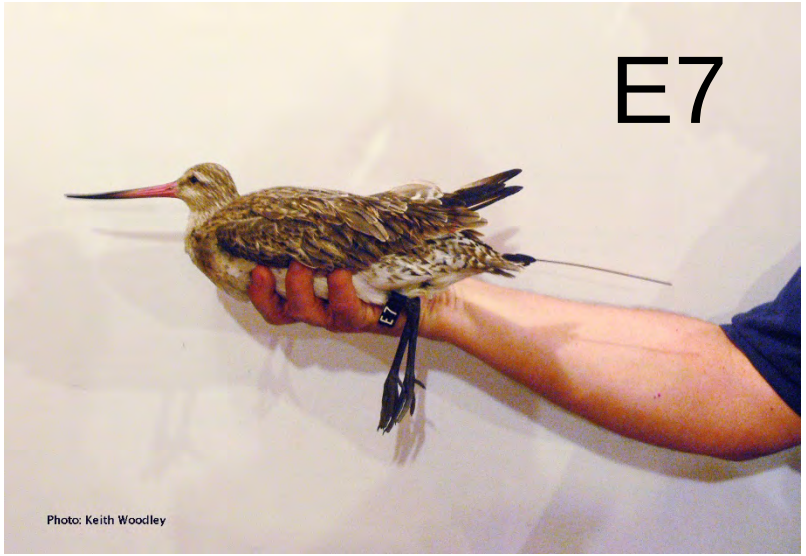

E7
Photo: Keith Woodley

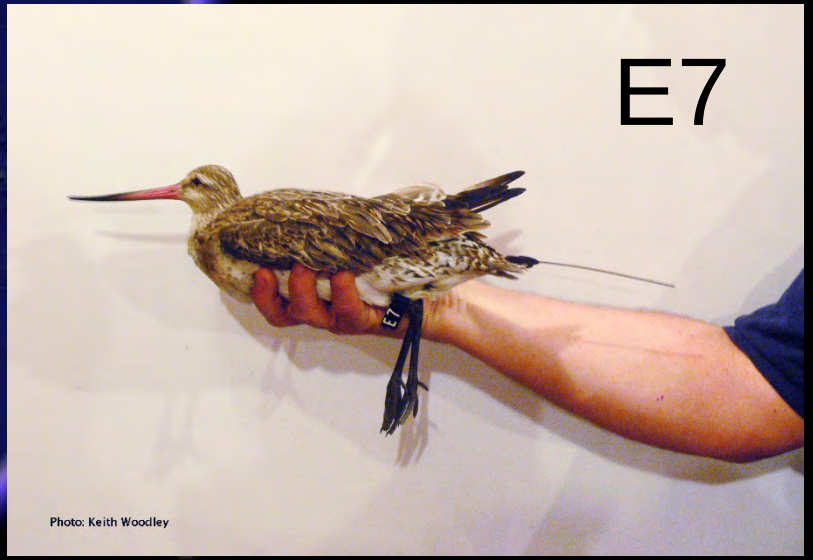
4 JUL 2007

4 SEP 2007

2 September 2007

departure 17 March 2007

Image NASA

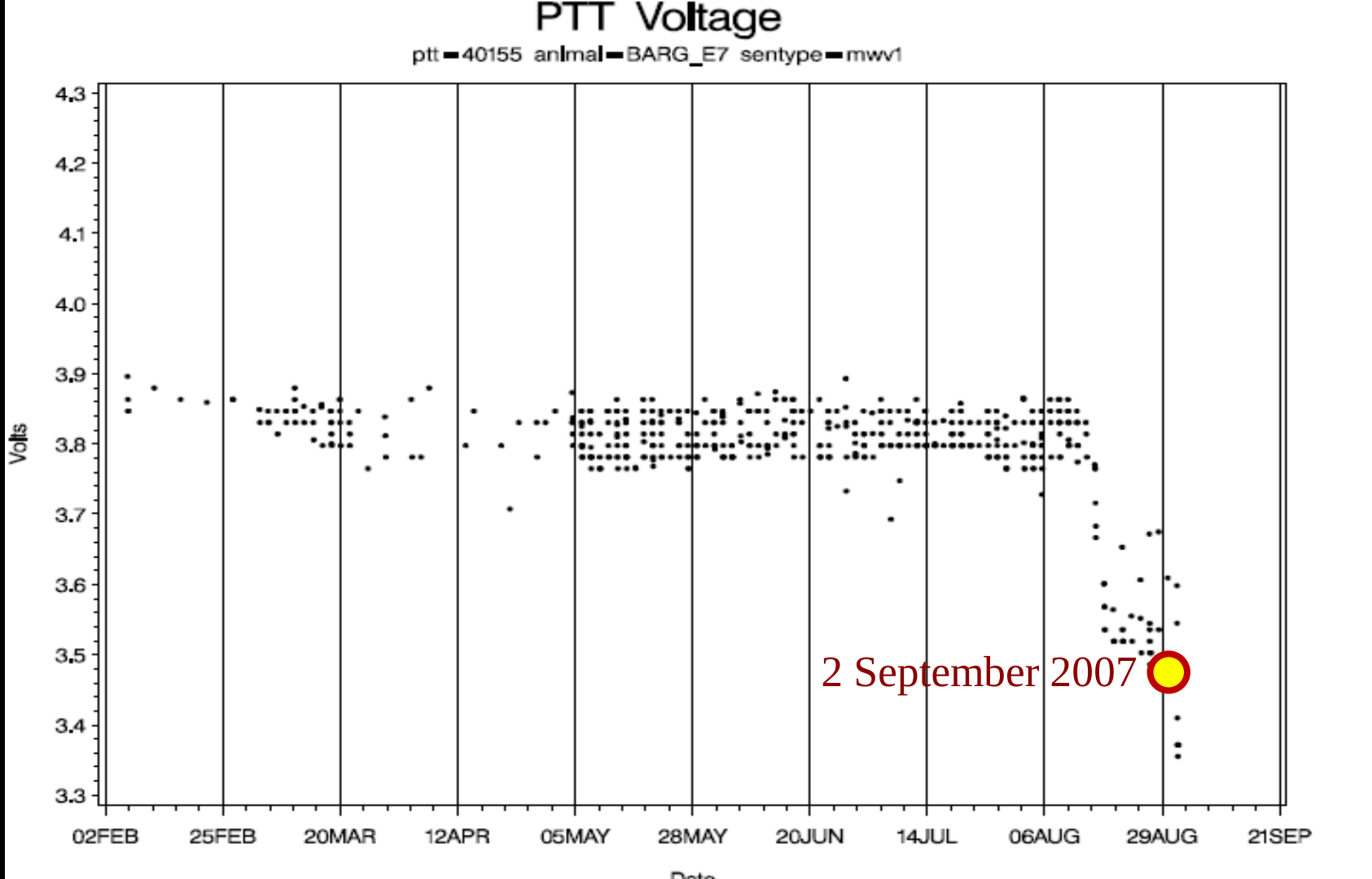


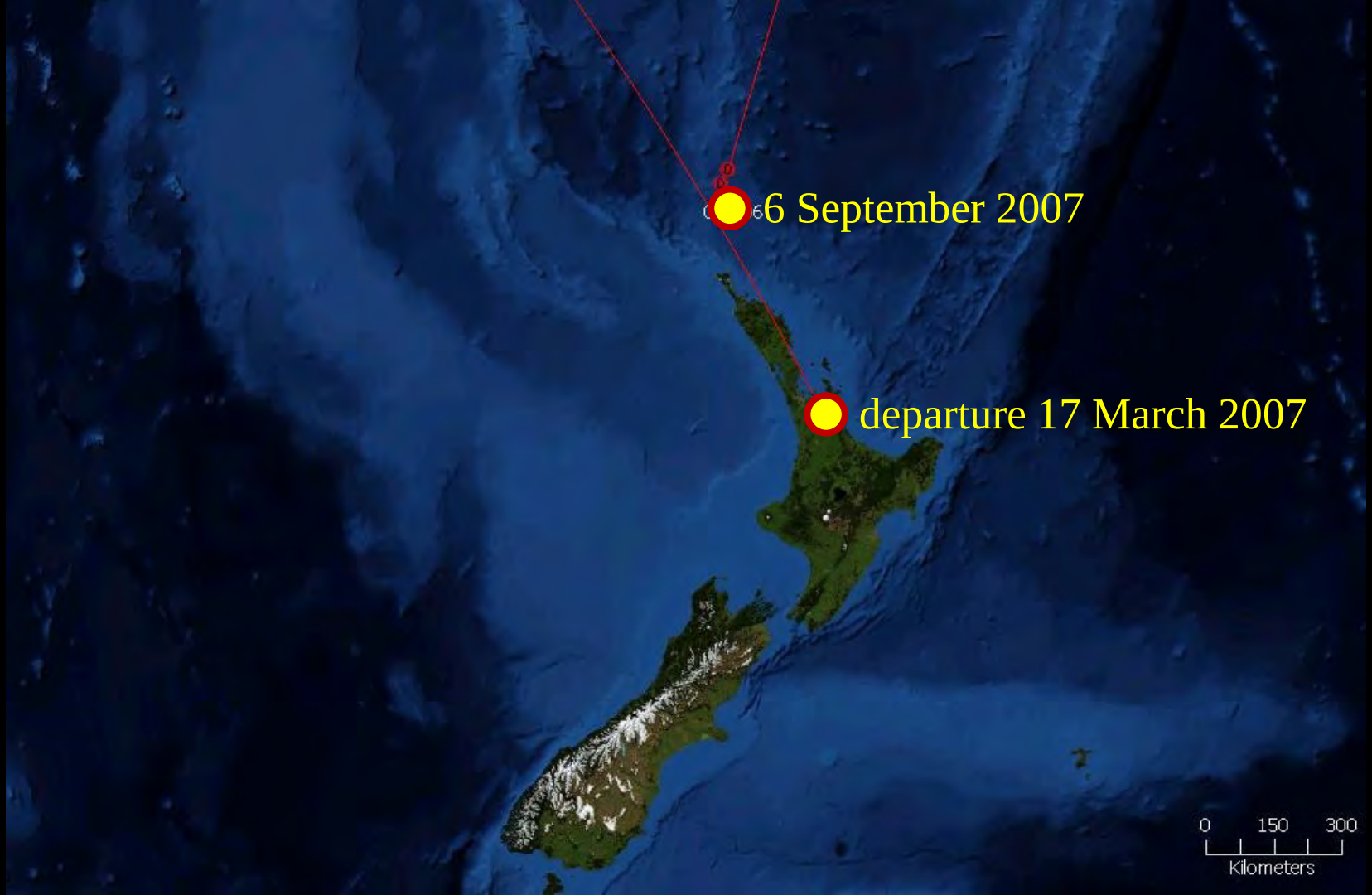
From: Lee Tibbitts <ltibbitts@usgs.gov>
To: p.battley@massey.ac.nz, B.Gartrell@massey.ac.nz, rgill@usgs.gov, familyhabraken@yahoo.com.au, David.Melville@xtra.co.nz, riegen@xtra.co.nz, rschckrd@xtra.co.nz, gillianv@actrix.co.nz, nilsw@prbo.org, shorebird@xtra.co.nz, ingridandpeter@slingshot.co.nz, doncooper@actrix.co.nz, druthrauff@usgs.gov, colleen_handel@usgs.gov, brian_mccaffery@fws.gov, gpage@prbo.org, sarahewarnock@yahoo.com, david_douglas@usgs.gov, daniel_mulcahy@usgs.gov, theunis@nioz.nl, jeff17_marks@msn.com, chartman@unr.nevada.edu

Date: Sunday, 02 September, 2007 02:59
Subject: godwit update: it is going to be a nail biter.....

Hi Everyone,

E7 is on her way back to her southern home!!!!.


PTT Voltage
ptt=40155 animal=BARG_E7 sentype=mwv1
Volts
4.3
4.2
4.1
4.0
3.9
3.8
3.7
3.6
3.5
3.4
3.3
02FEB
25FEB
20MAR
12APR
05MAY
28MAY
20JUN
14JUL
06AUG
29AUG
21SEP
2 September 2007


6 September 2007
departure 17 March 2007
0
150
300
Kilometers


7 September 2007
9/8/07:21


Yukon Delta
May 5 - August 30
Yalu Jiang
March 24 - May 1
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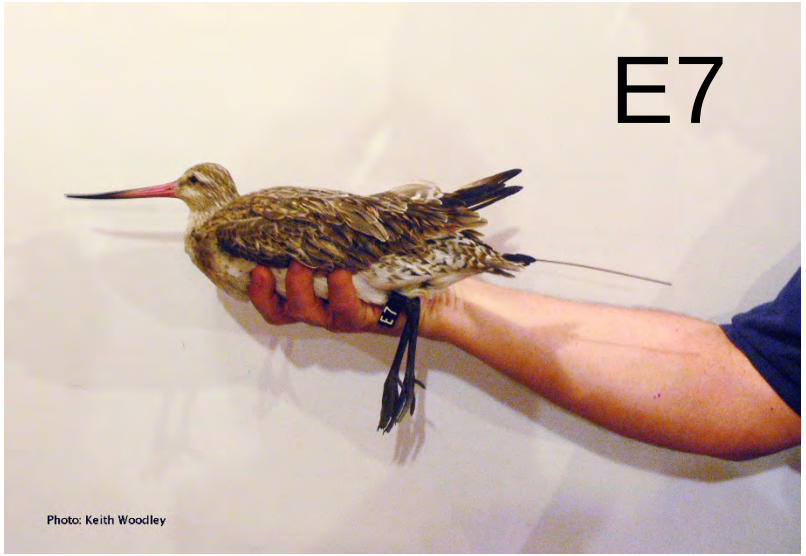
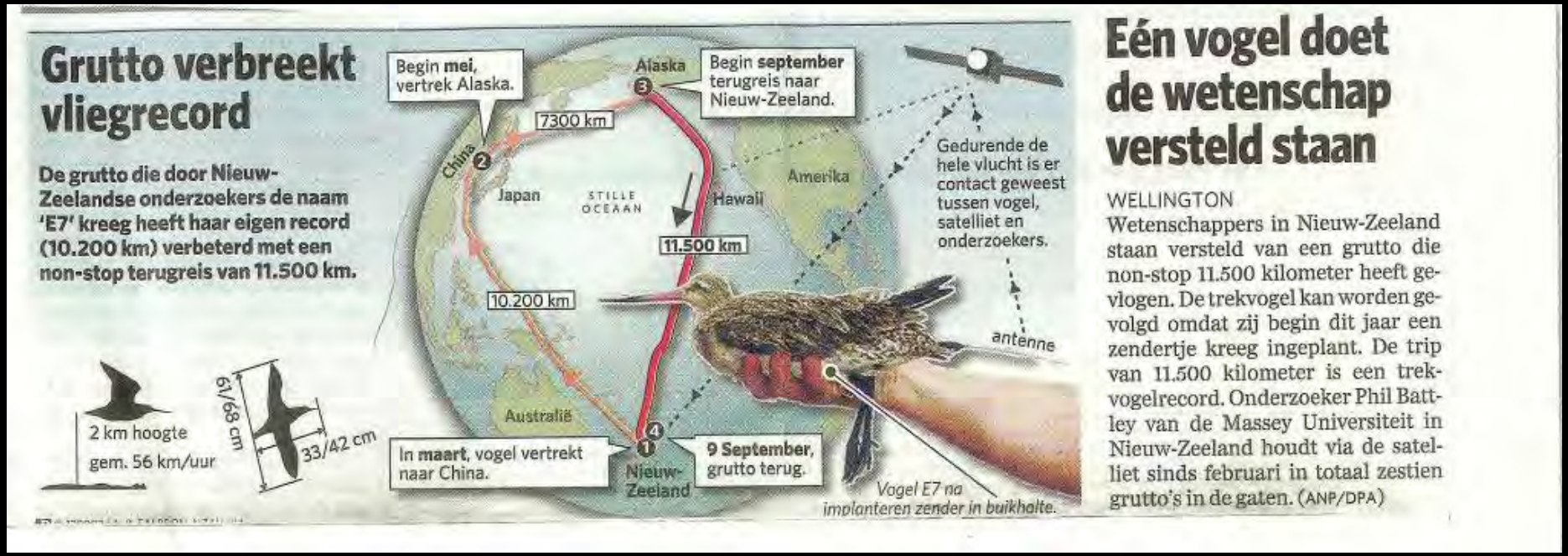

E7
Photo: Keith Woodley

Bar-tailed Godwit E7



Grutto verbreekt vliegrecord

De grutto die door Nieuw-Zeelandse onderzoekers de naam 'E7' kreeg heeft haar eigen record (10.200 km) verbeterd met een non-stop terugreis van 11.500 km.

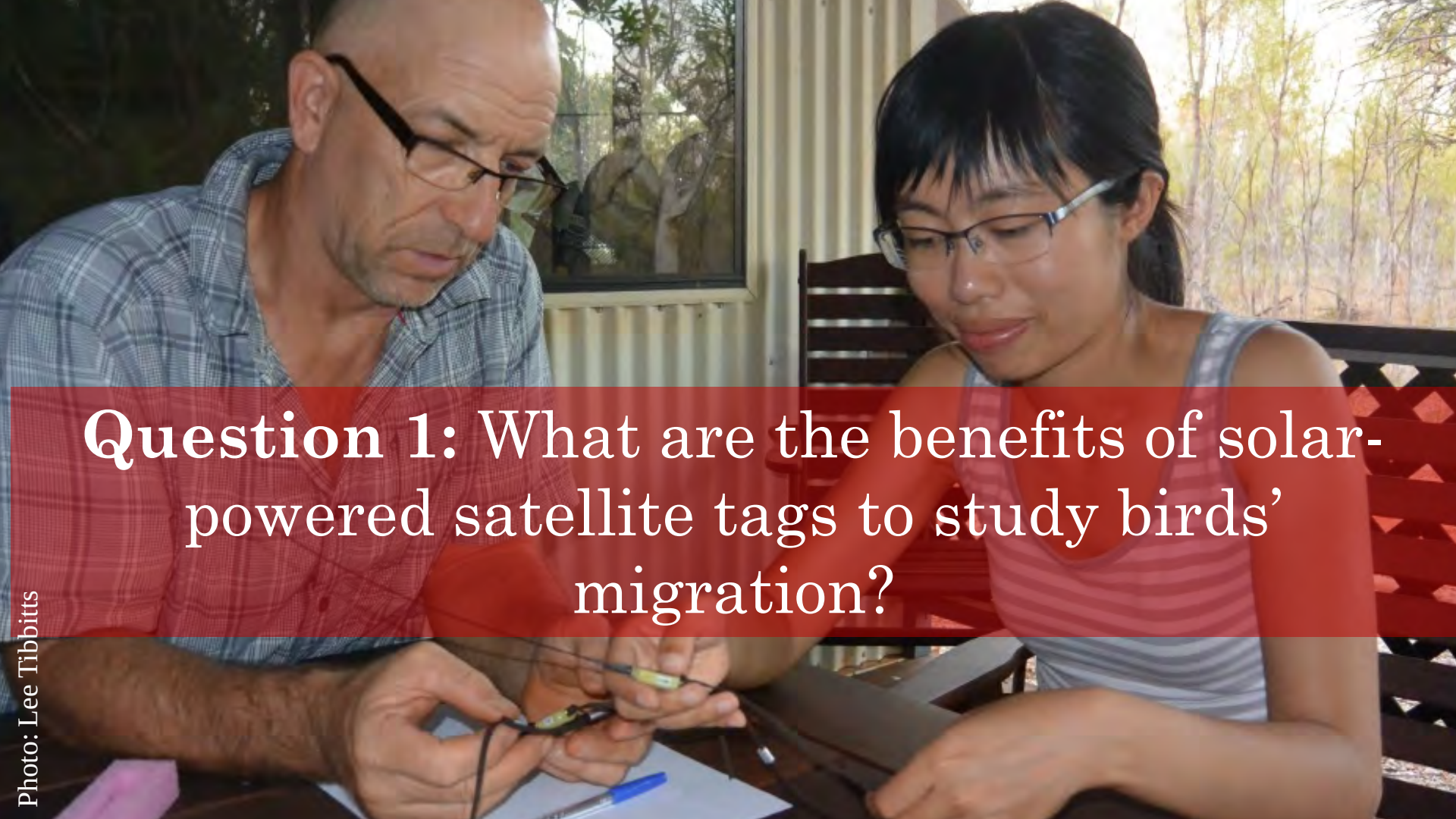
Eén vogel doet de wetenschap versteld staan

WELLINGTON

Wetenschappers in Nieuw-Zeeland staan versteld van een grutto die non-stop 11.500 kilometer heeft gevlogen. De trekvogel kan worden gevolgd omdat zij begin dit jaar een zendertje kreeg ingeplant. De trip van 11.500 kilometer is een trekvogelrecord. Onderzoeker Phil Battley van de Massey Universiteit in Nieuw-Zeeland houdt via de satelliet sinds februari in totaal zestien grutto's in de gaten. (ANP/DPA)

Dutch daily newspaper (Algemeen Dagblad), 12 September 2007

Solar-powered Satellite Tags



Question 1: What are the benefits of solar-powered satellite tags to study birds' migration?

Photo: Lee Tibbitts

Photo: Lee Tibbitts

Where do Great Knots stop during migration?

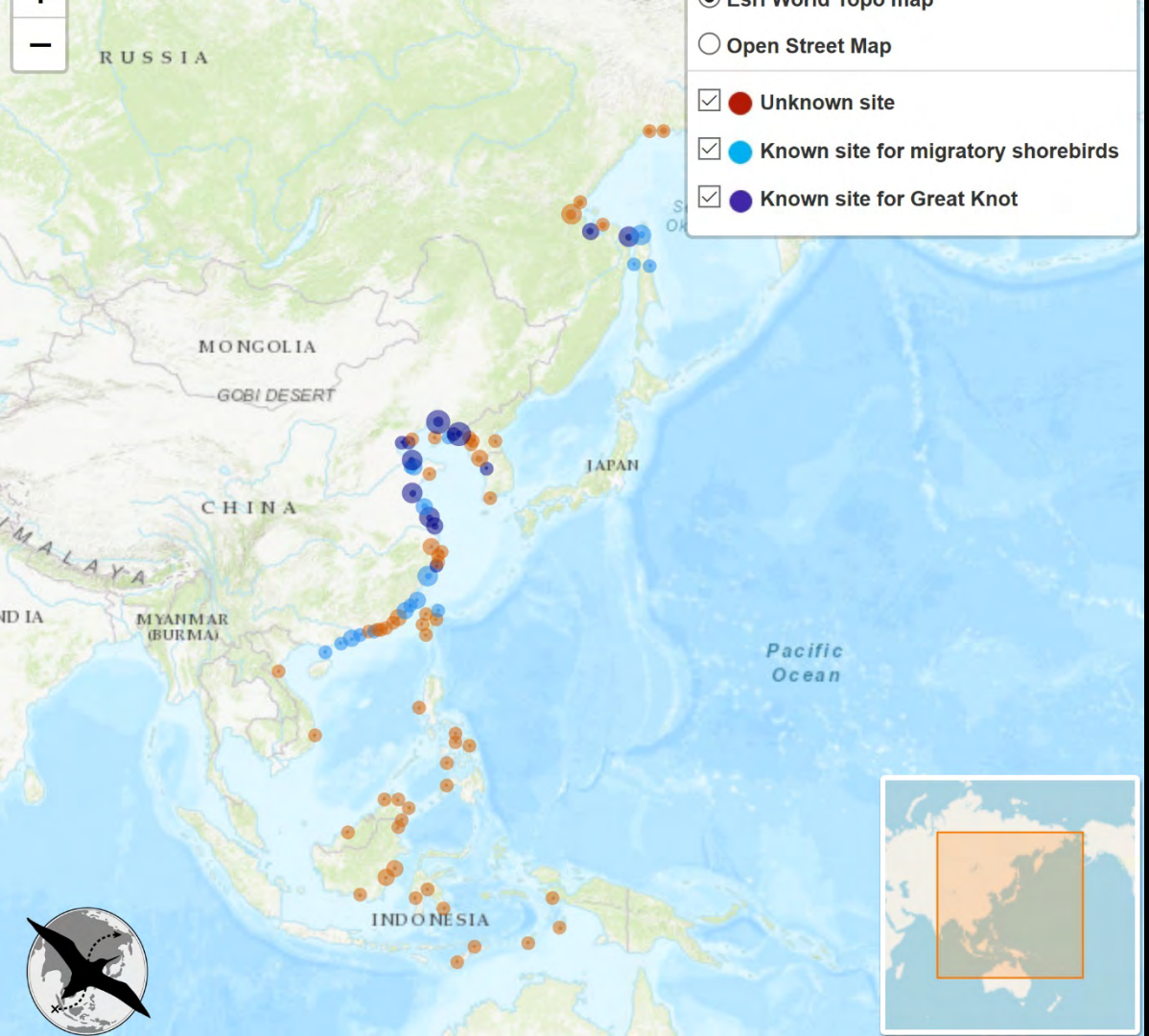
Great Knots (*Calidris tenuirostris*) are small migratory shorebirds in the East Asian-Australasian Flyway that fly each year between breeding grounds in the eastern Russian Arctic and nonbreeding grounds in Australia. They are also endangered. One major threat is the habitat destruction and degradation in their stopping areas during their migration.

In 2015-2017, a team of scientists from the Netherlands (University of Groningen and NIOZ), USA (US Geological Survey) and Australia, brought together by the Global Flyway Network, tracked Great Knots year-round with satellite transmitters. This is the first time that the entire migration journey has been tracked.

Here are the 92 sites where these great knots stopped.

Prior to this study, many of these sites (63%) were not known as important for migratory shorebirds. The study has highlighted regions potentially important for shorebirds but lack ecological information and conservation recognition, such as those in Southern China and Southeast Asia.

Find out more in the article in the Journal of Applied Ecology.



Great Knot

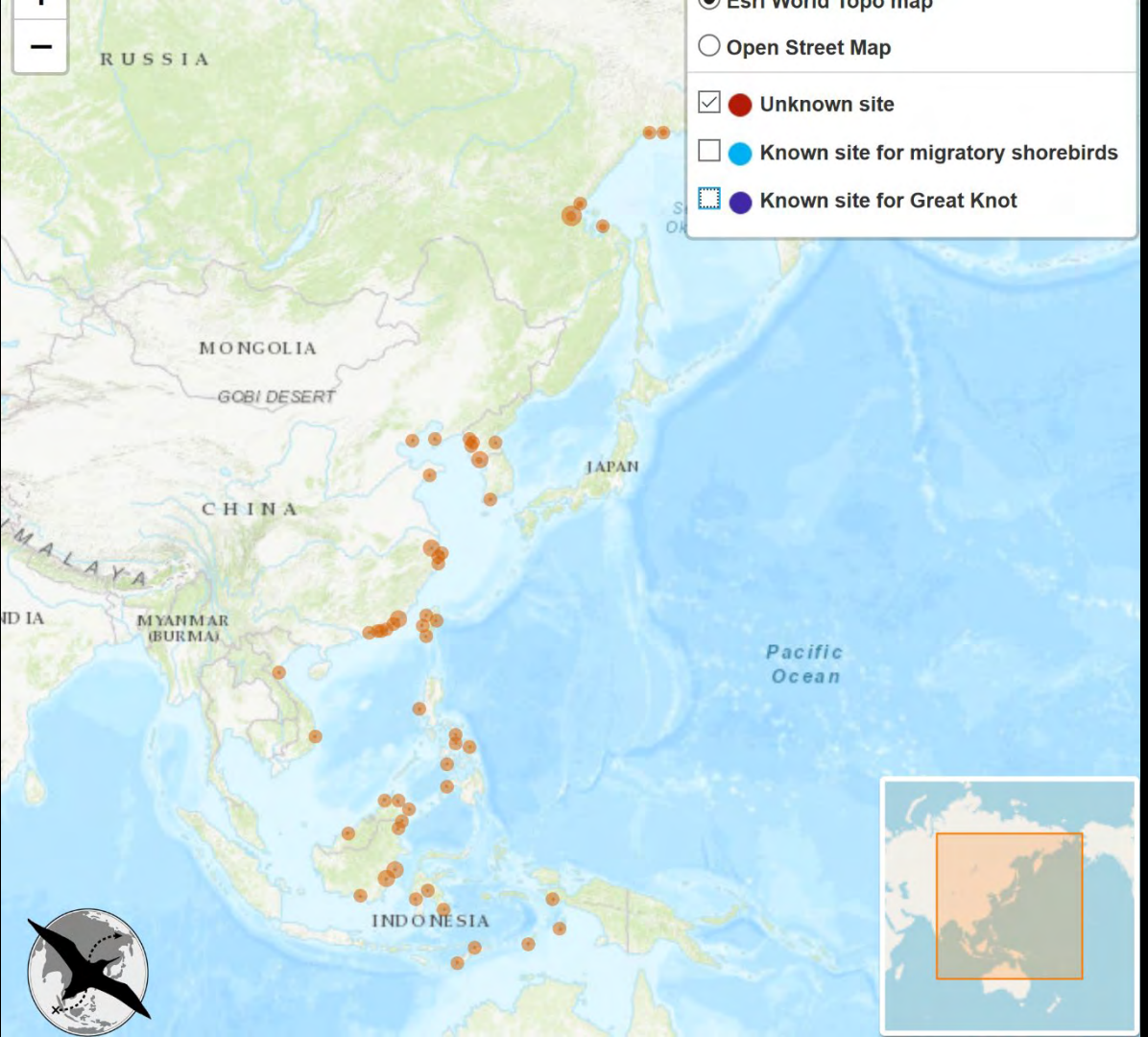
https://chanyingchi.github.io/greatknot.stops/

Great Knot

https://chanyingchi.github.io/greatknot.stops/

Great Knot

https://chanyingchi.github.io/greatknot.stops/



Great Knot

https://chanyingchi.github.io/greatknot.stops/

Great Knot

https://chanyingchi.github.io/greatknot.stops/

Received: 28 January 2019 | Accepted: 14 June 2019
DOI: 10.1111/1365-2664.13474

RESEARCH ARTICLE

Journal of Applied Ecology

Filling knowledge gaps in a threatened shorebird flyway through satellite tracking

Ying-Chi Chan[1,2] | T. Lee Tibbitts[3] | Tamar Lok[2] | Chris J. Hassell[4] | He-Bo Peng[1,2,5] | Zhijun Ma[5] | Zhengwang Zhang[6] | Theunis Piersma[1,2,4]

BENEFIT-1

Sat-tags give 'spatially'and 'temporally' **unbiased data** on distribution and occurrence

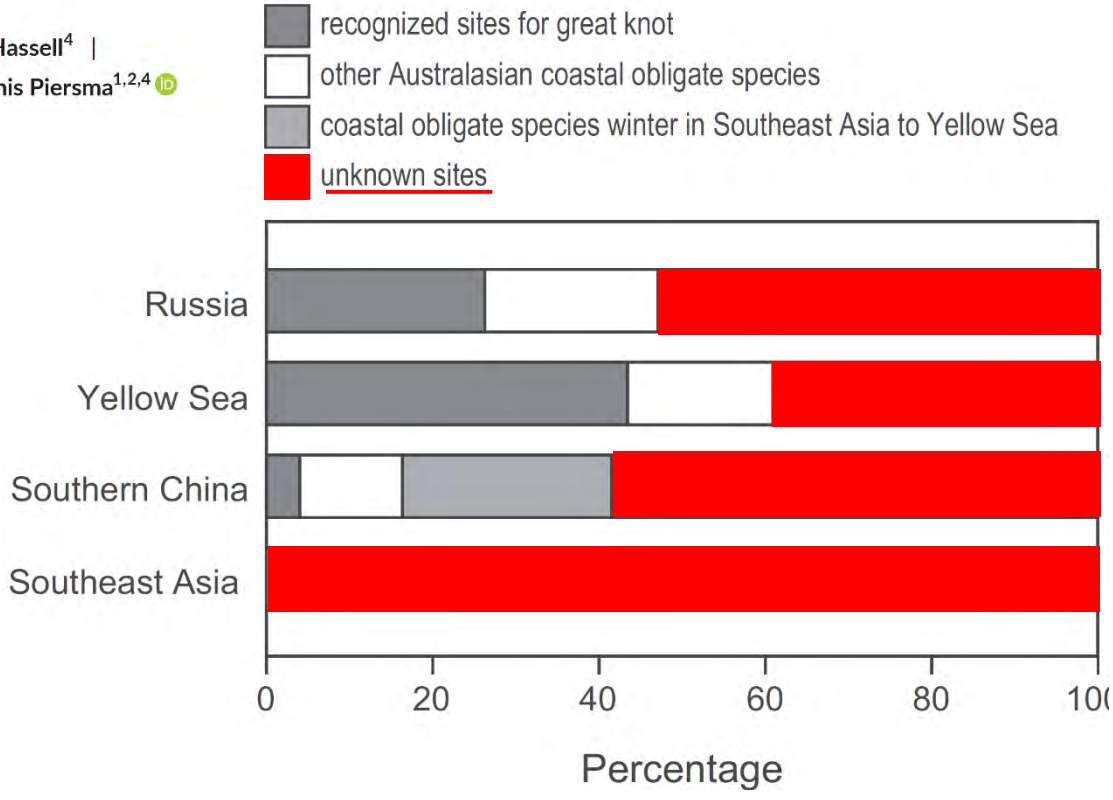


Photo: Andreas Kim

global flyway network
Team Piersma

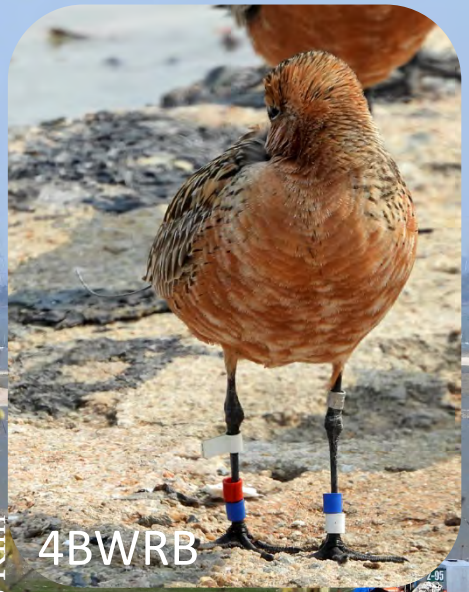
Shinan County

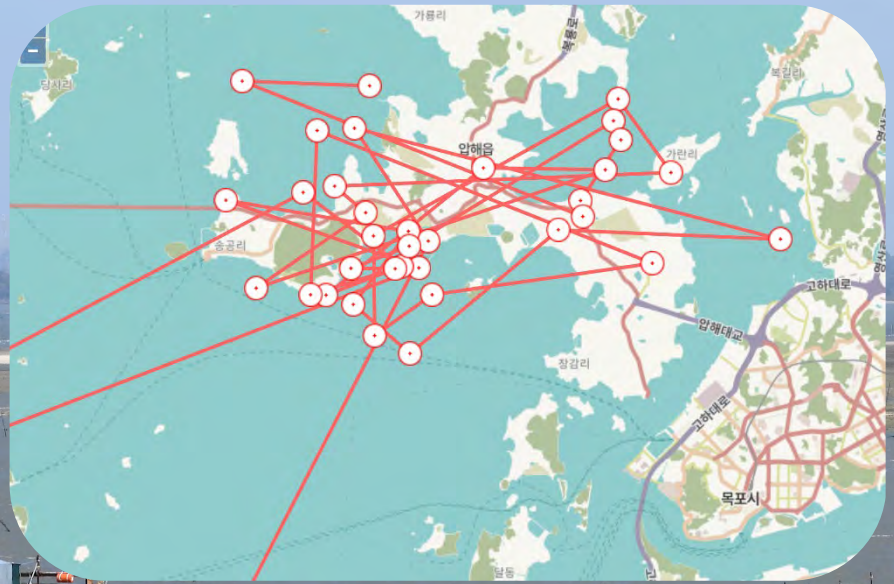
Photo: Andreas Kim

2000 km

last update: 12:00 GMT /

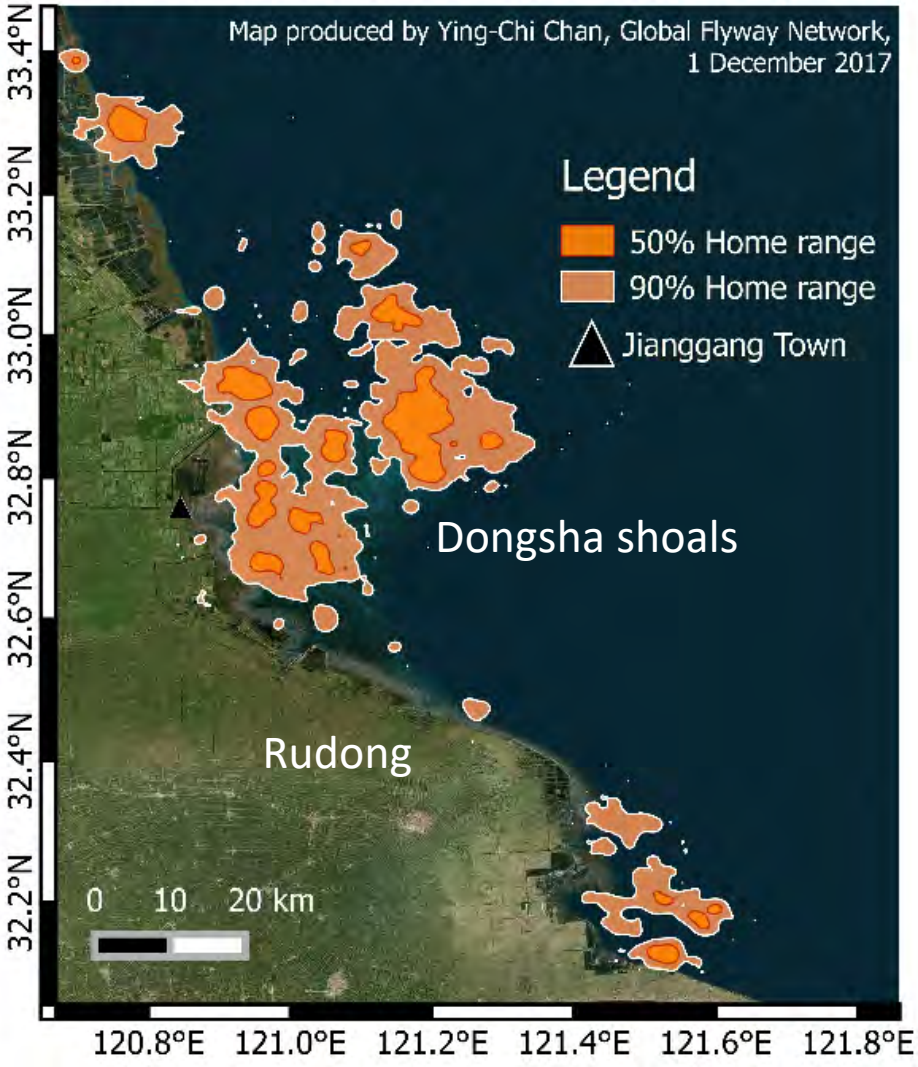
*"Shinan County consists of about 1000 islands and islets. Some tidal areas are protected area and the region is listed for **UNESCO World Heritage Site** recognition"*



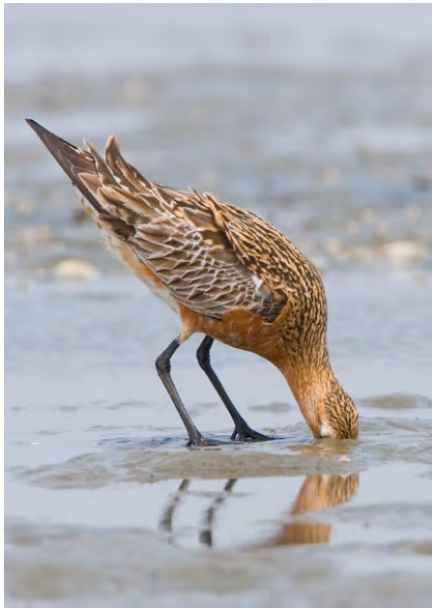


Shinan County, South Korea

Photos: Andreas Kim



unambigiously demonstrating the importance of the Dongsha shoals, Jiangsu, China, for migrating bar-tailed godwits and great knots



MAVA
FONDATION POUR LA NATURE

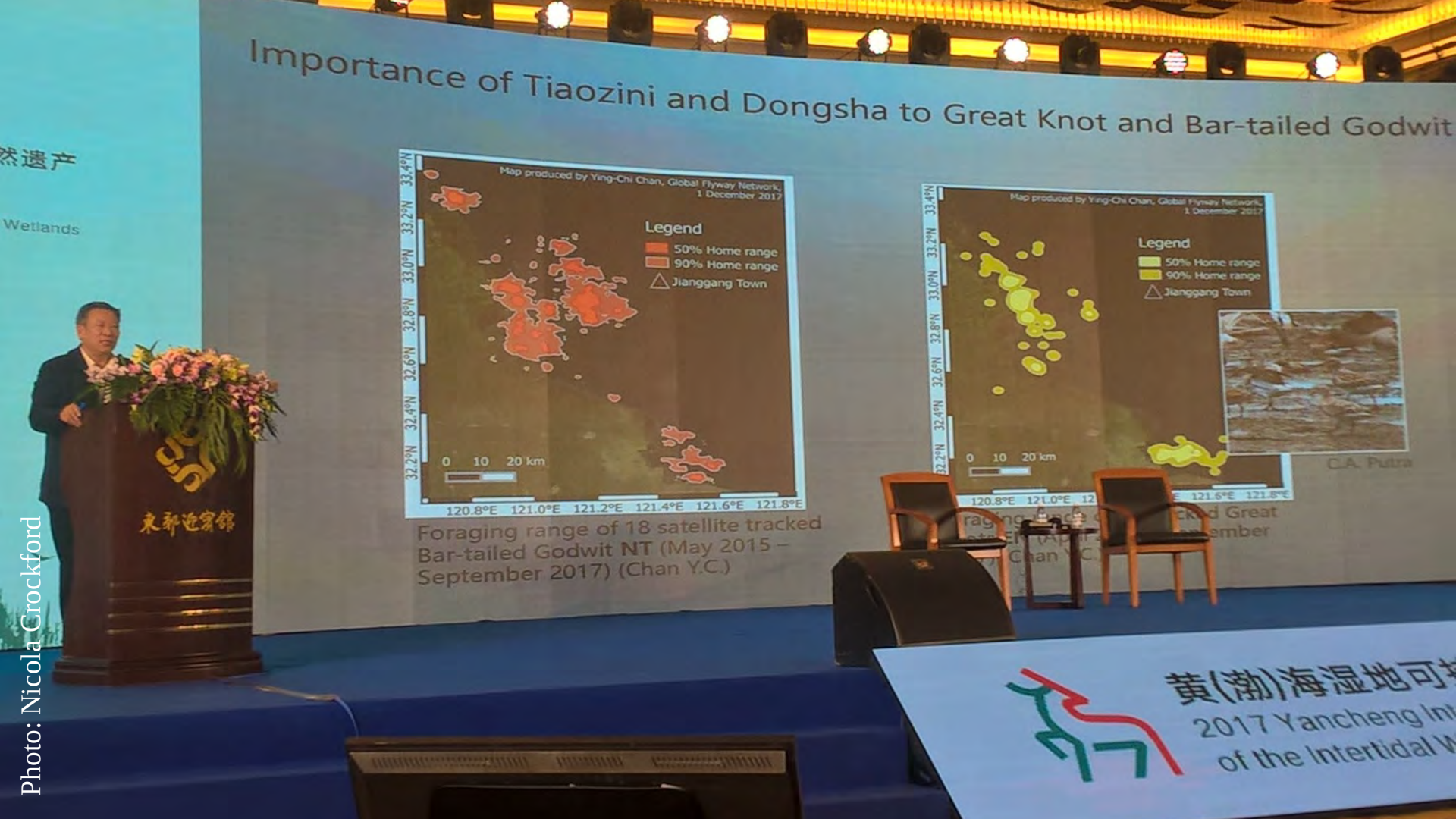
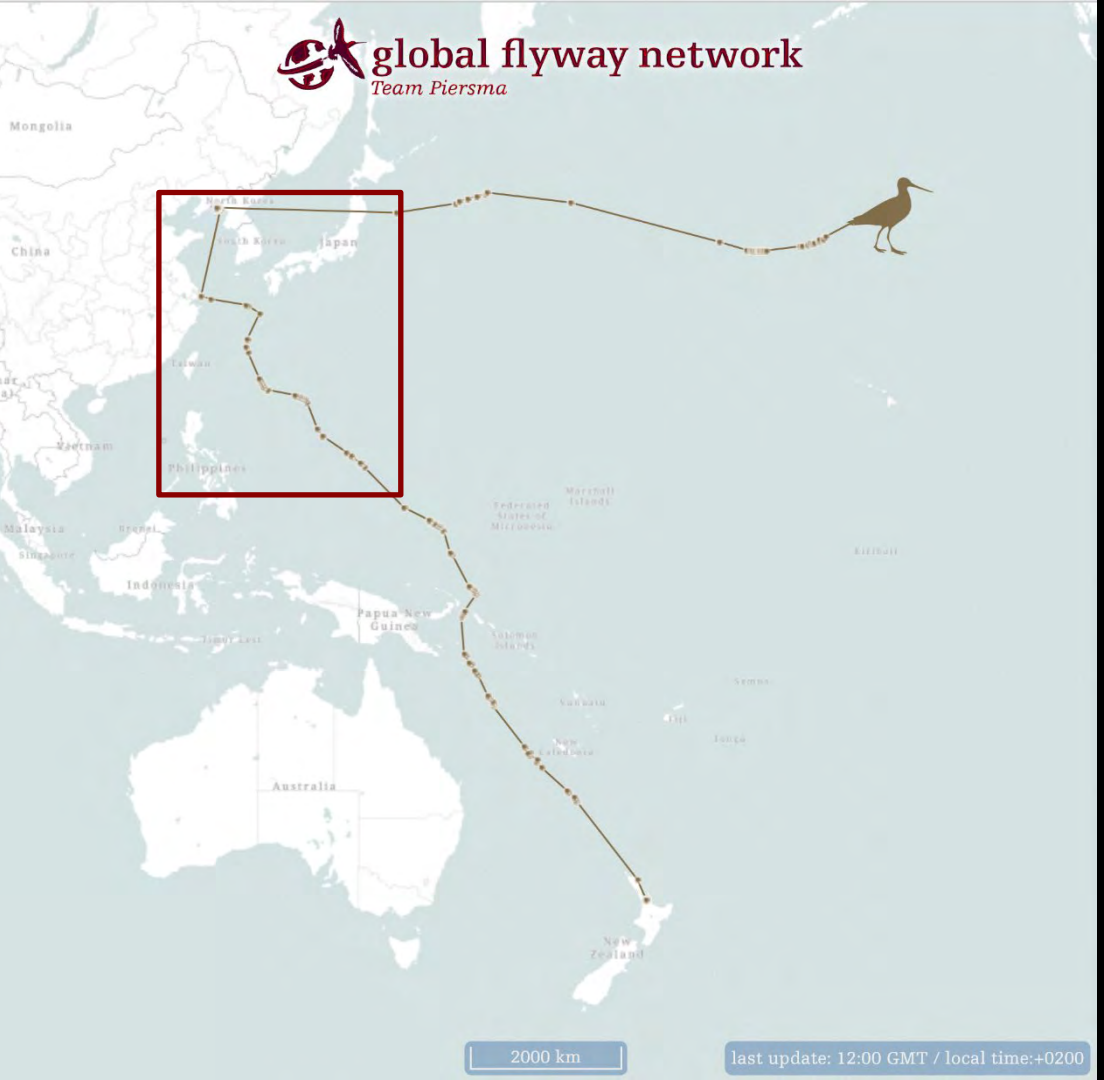


Photo: Nicola Crockford

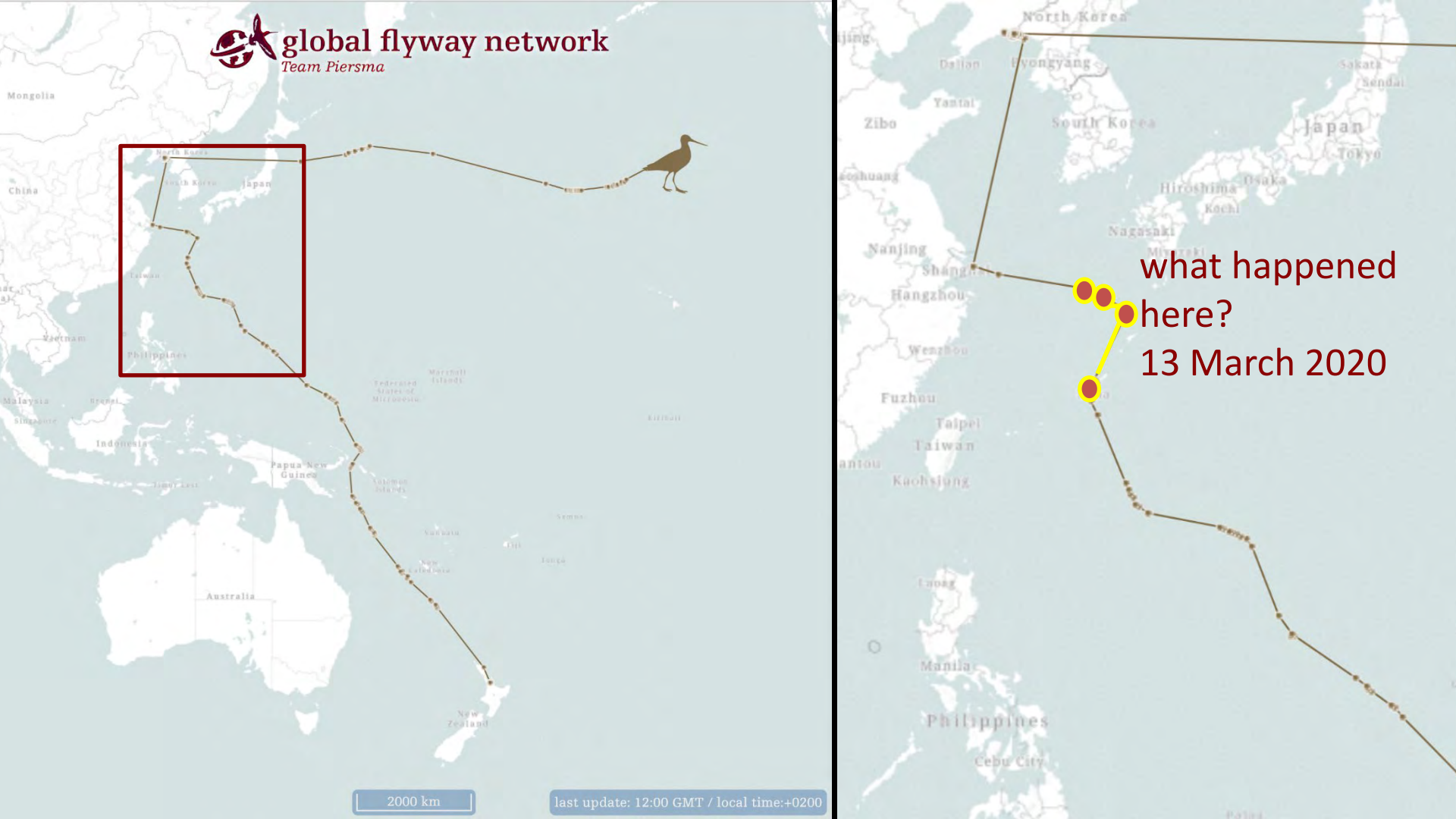
BENEFIT-2

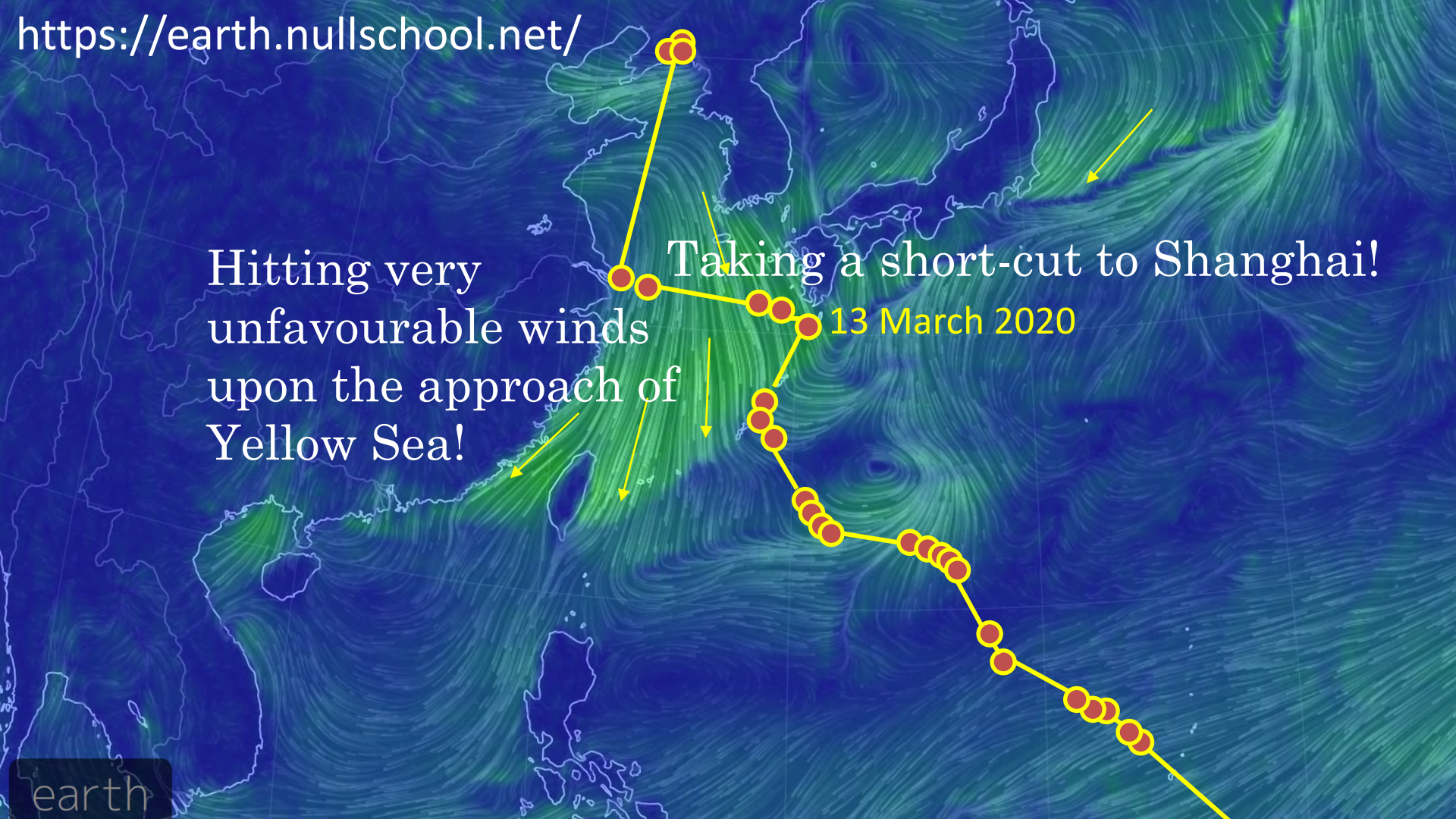
Sat-tags inform and underpin the design of nature reserves – World Heritage Sites

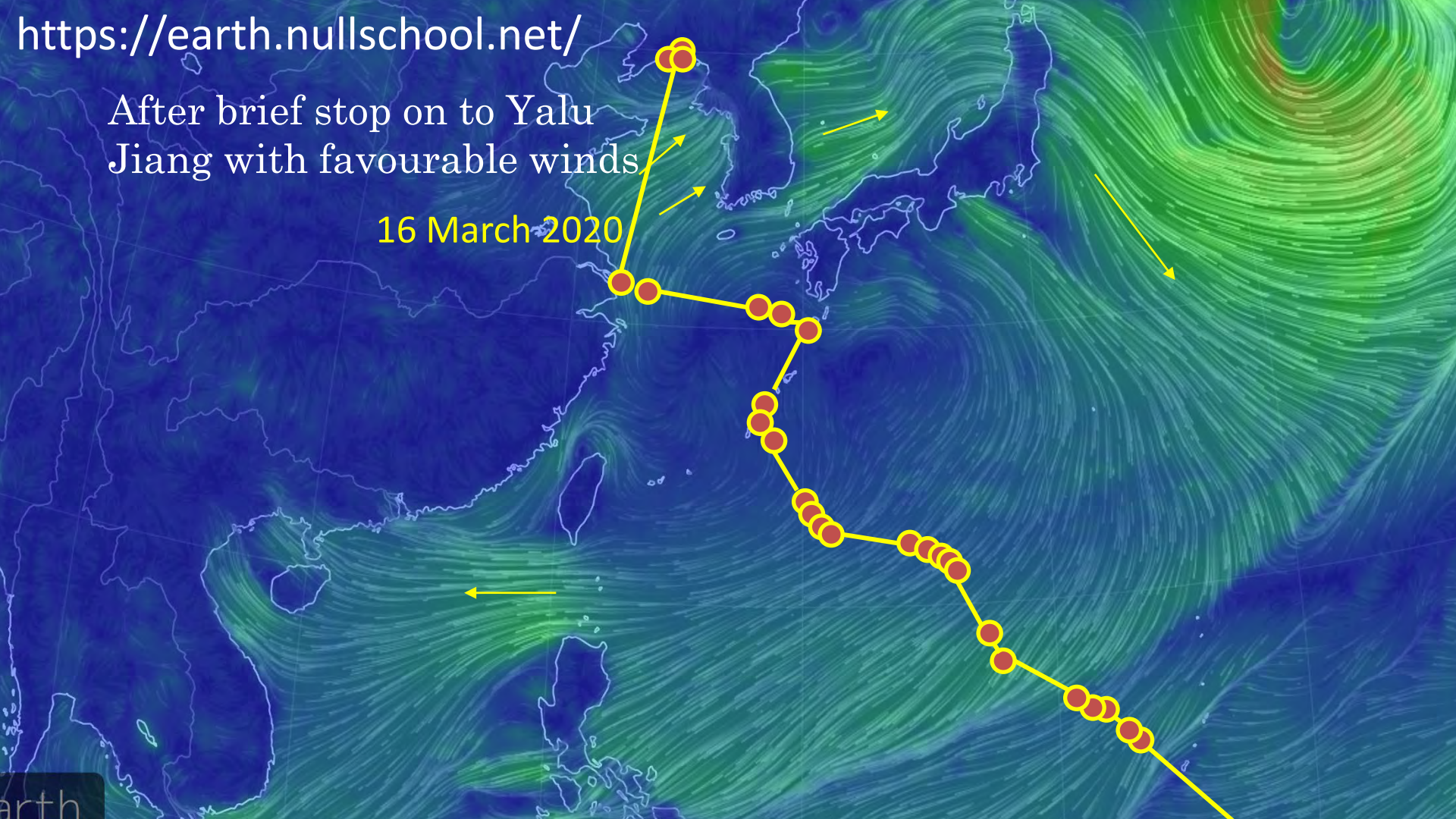


Bar-tailed Godwit **4BBWY** after capture and tagging at Pukorokoro-Miranda, New Zealand, on 30 October 2019.

Photo by Katherine Leung


global flyway network
Team Piersma
what happened here?
13 March 2020
2000 km
last update: 12:00 GMT / local time:+0200

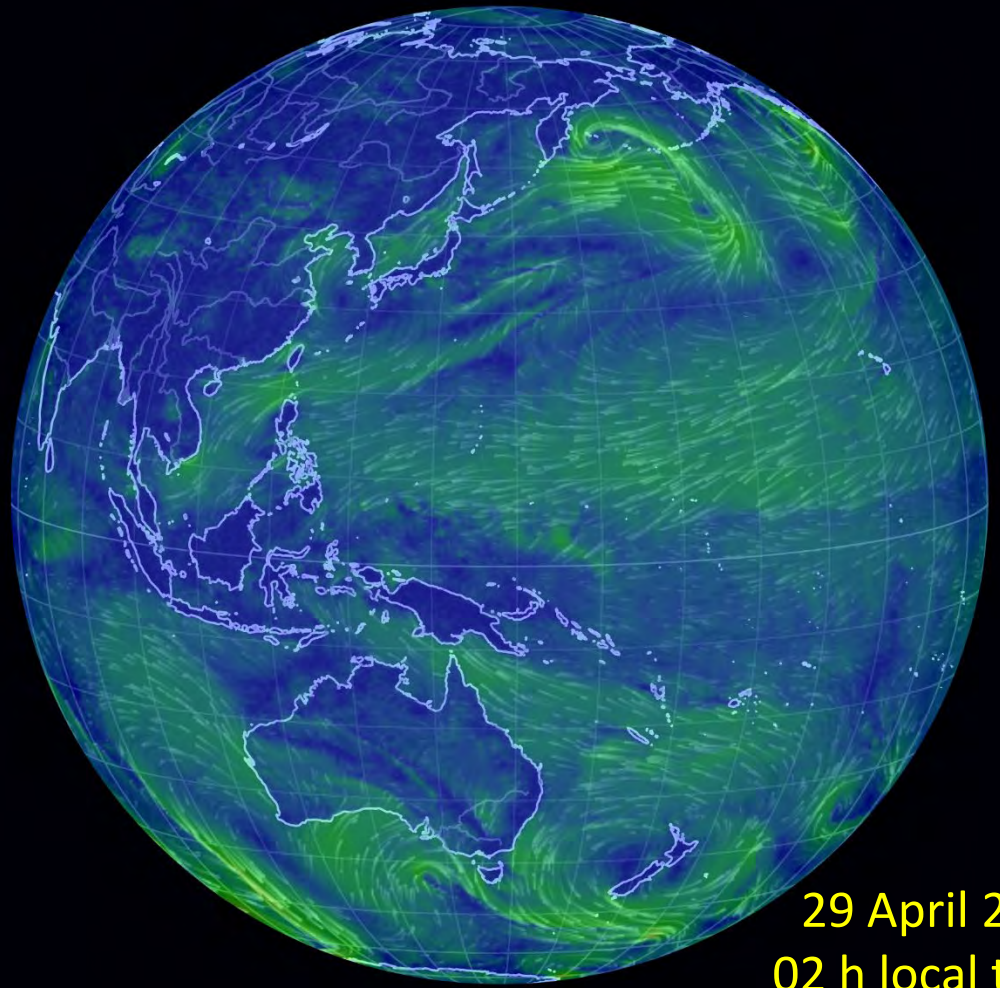

https://earth.nullschool.net/
Hitting very unfavourable winds upon the approach of Yellow Sea!
Taking a short-cut to Shanghai!
13 March 2020
earth


https://earth.nullschool.net/
After brief stop on to Yalu Jiang with favourable winds
16 March 2020

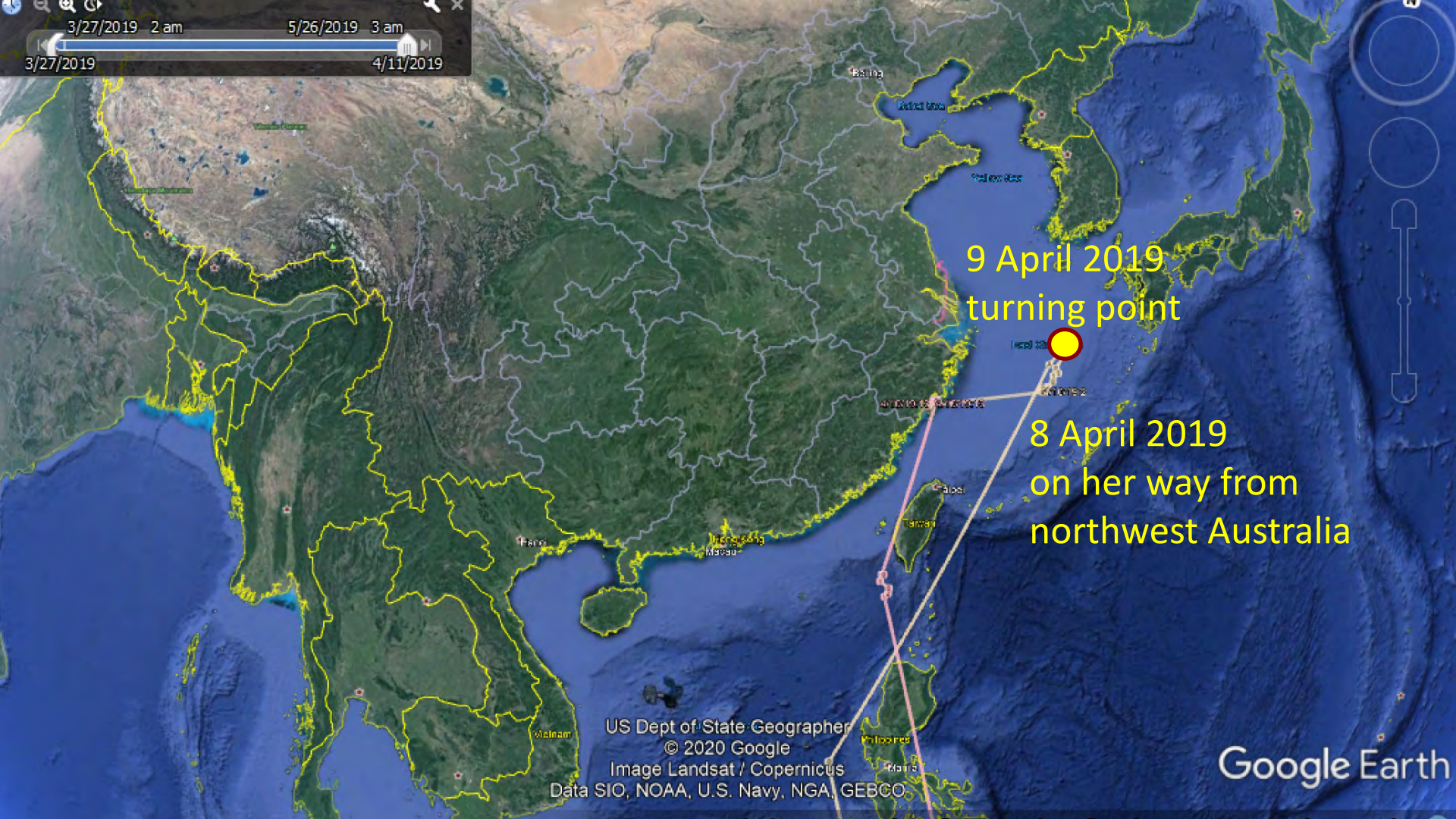
https://earth.nullschool.net/

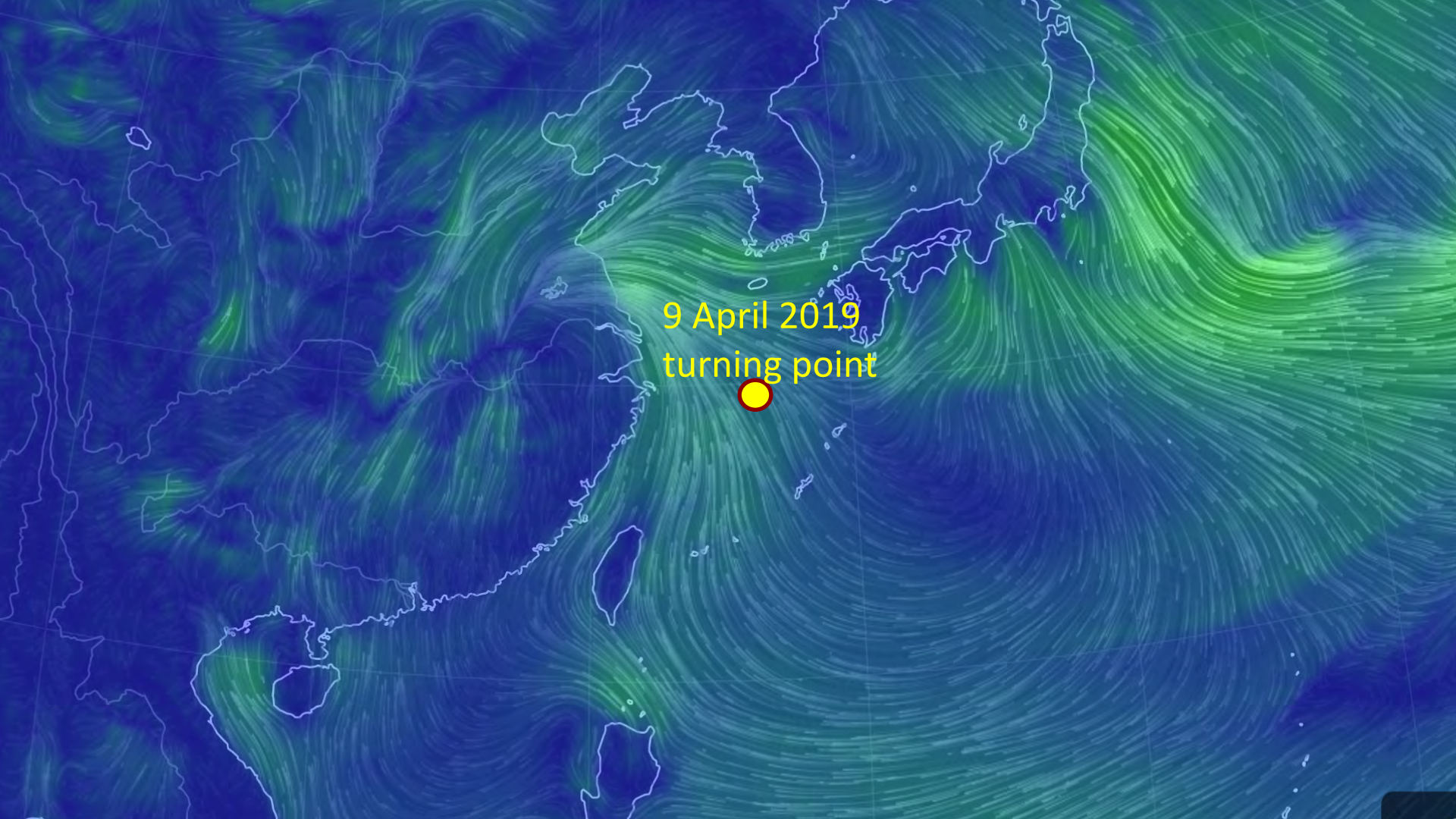
BENEFIT-3

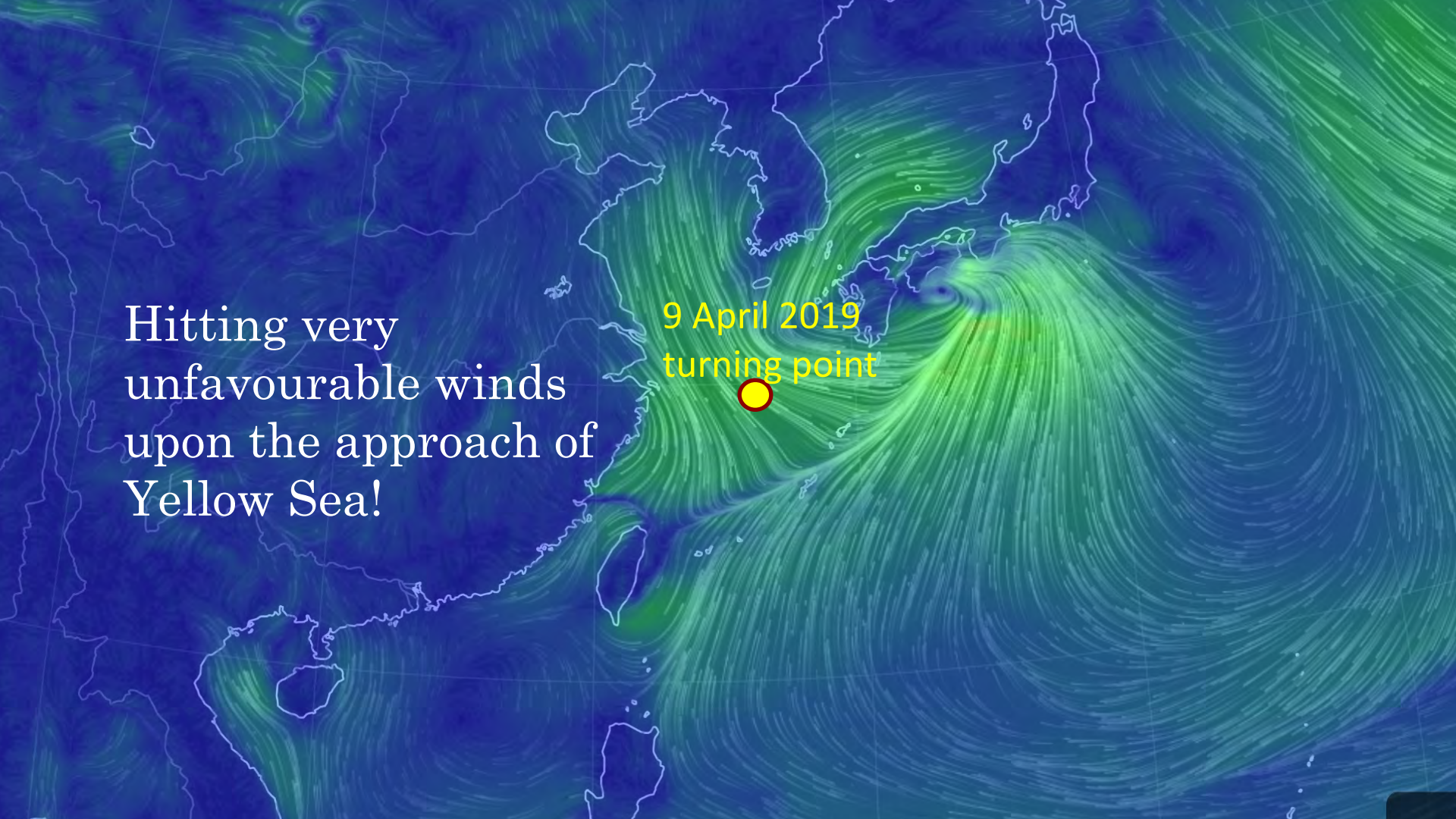
Sat-tags yield very precise information on how individual birds deal with winds (and other geographic features)

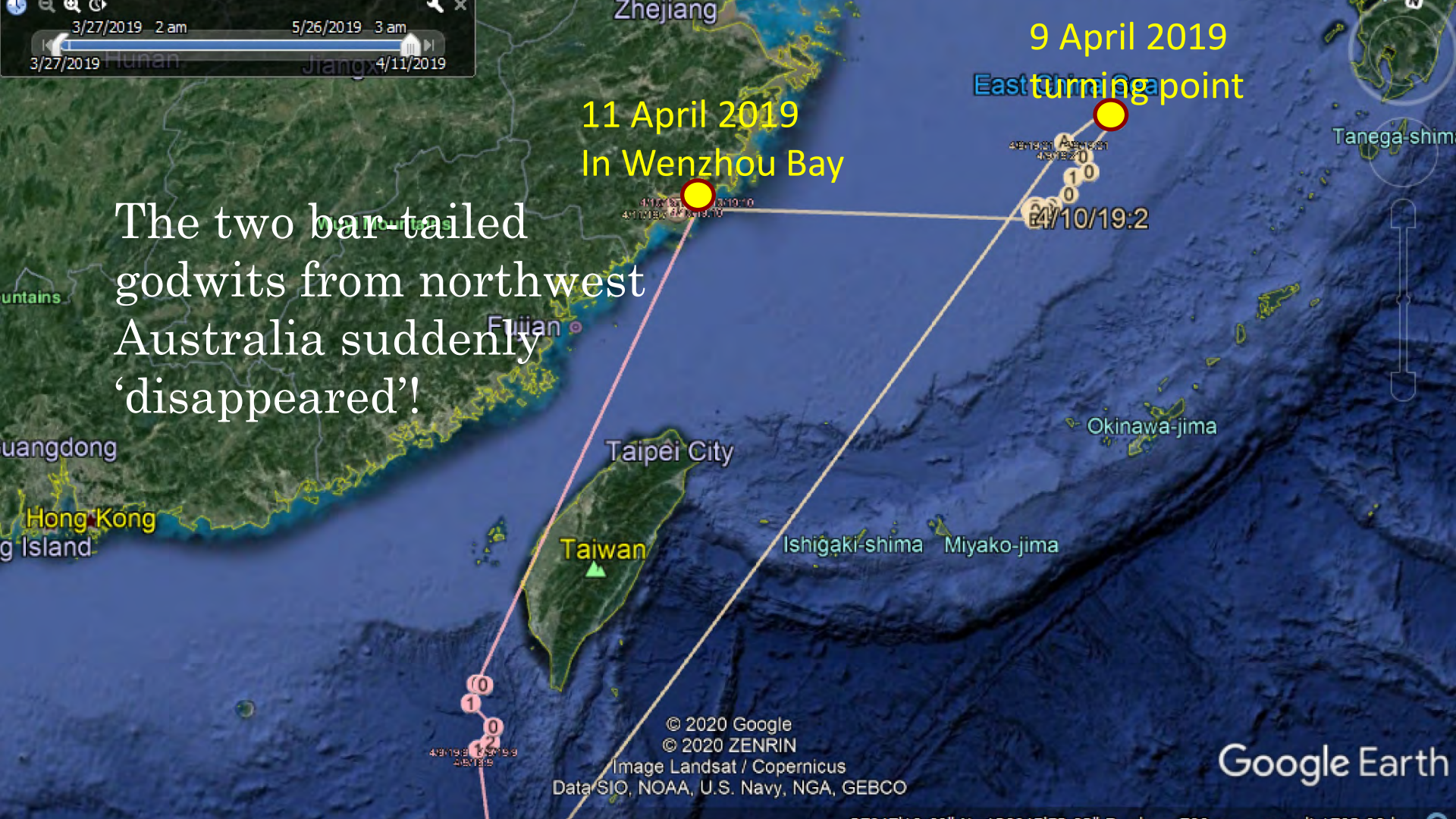


29 April 2020
02 h local time


3/27/2019 2 am
5/26/2019 3 am
3/27/2019
4/11/2019
9 April 2019
turning point
8 April 2019
on her way from
northwest Australia
US Dept of State Geographer
© 2020 Google
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Google Earth


9 April 2019
turning point


Hitting very unfavourable winds upon the approach of Yellow Sea!
9 April 2019
turning point


3/27/2019 2 am
5/26/2019 3 am
3/27/2019
4/11/2019
Zhejiang
9 April 2019
turning point
11 April 2019
In Wenzhou Bay
The two bar-tailed godwits from northwest Australia suddenly 'disappeared'!
Fujian
Taipei City
Taiwan
Hong Kong
Okinawa-jima
Ishigaki-shima
Miyako-jima
Tanega-shima
© 2020 Google
© 2020 ZENRIN
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Google Earth

Yueqing, Wenzhou

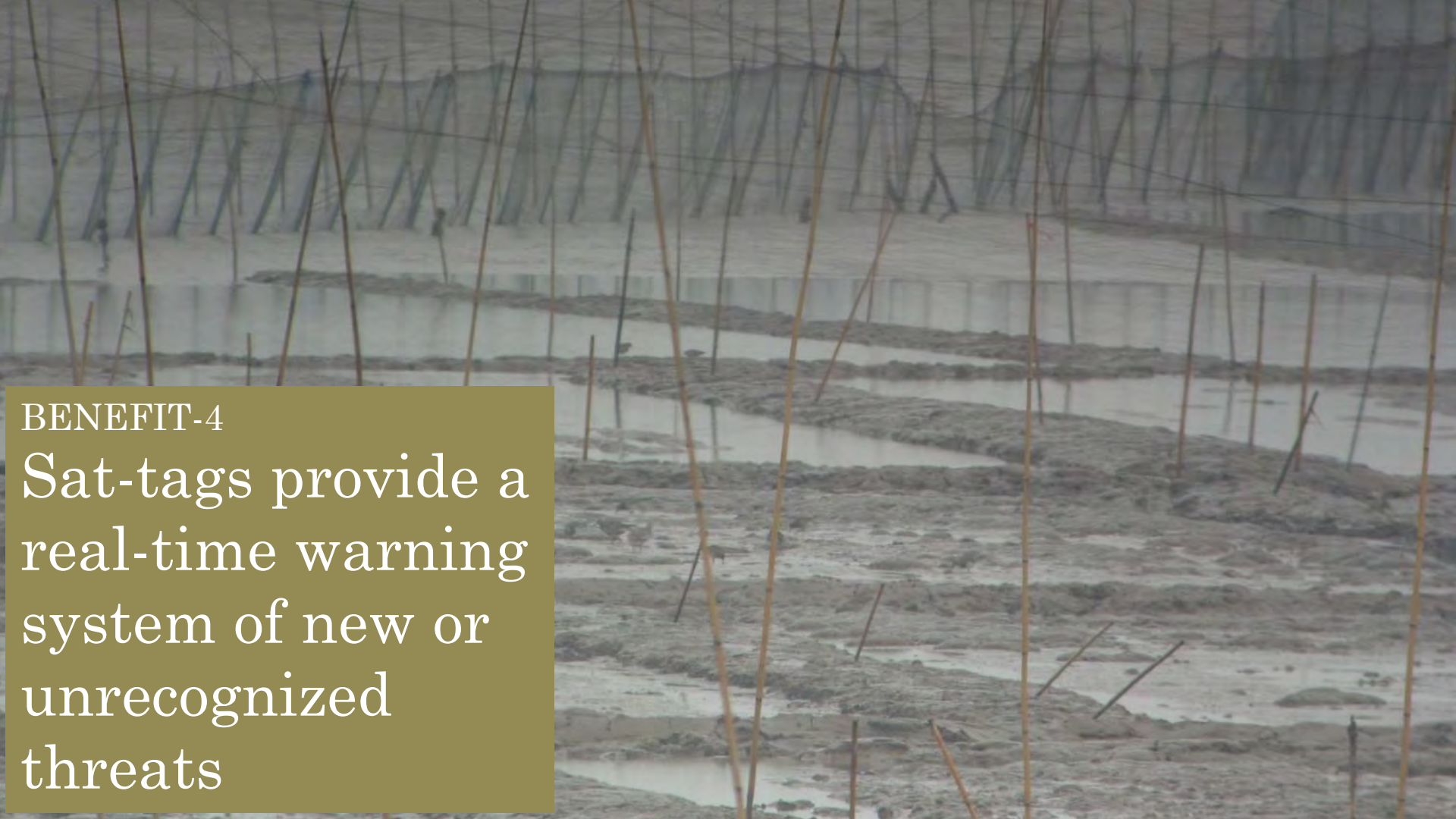
Photos: Gimmy Chan

Yueqing, Wenzhou

Photos: Ginny Chan

Photos: Shoudong Zhang

Yalu Jiang, China, April 2020



BENEFIT-4

Sat-tags provide a real-time warning system of new or unrecognized threats

Black-tailed godwit

National bird of
The Netherlands

Icon of our
historic
flower-rich
meadows

KING
of the Meadows


Amalia
Photo: Lee Tibbittss

Black-tailed godwit

National bird of The Netherlands

Photo: Hans Pietersma

Icon of our historic flower-rich meadows

KING of the Meadows

https://volg.keningfanegreide.nl/king-of-the-meadows-transmittersite/

Koning van het grasland

THEATER BIJ DE BOER

VAN DE MAKERS VAN MANSHOLT

MEI T/M JULI 2018 OP LOCATIE TE ZIEN IN
NOORD-HOLLAND, ZUID-HOLLAND, FLEVOLAND,
BRABANT, OVERIJSSEL, UTRECHT EN FRIESLAND

toneelgroep JAN VOS

De voorstelling is in 2017 ontwikkeld in coproductie met Pier21 en het burgerinitiatief Koning fan 'e greide.

pier 21 ROOSENDAAL

KONING fan 'e Greide

BENEFIT-5

Sat-tags are an under-used tool to engage the public with what it is like to be a long-distance migratory bird

Question 2: Can you tell which ‘things’ that solar-powered satellite tags can NOT do?

Photo: Lee Tibbitts

民以食为天，鸟为食而亡

Photo: Ginny Chan

bird food (e.g. *Potamocorbula*)

米蛤=光滑河蓝蛤

Photo: Jan van de Kam

programme lead by He-Bo Peng of BFU/NIOZ/RUG & efforts of Fudan University team at Yali Jang

Photo: Hebo Peng

Photo: Hebo Peng

Commercial species dominate

Non-commercial species

Commercial species

No latitudinal biodiversity gradient anymore

WHAT SAT-TAGS DON'T DO!

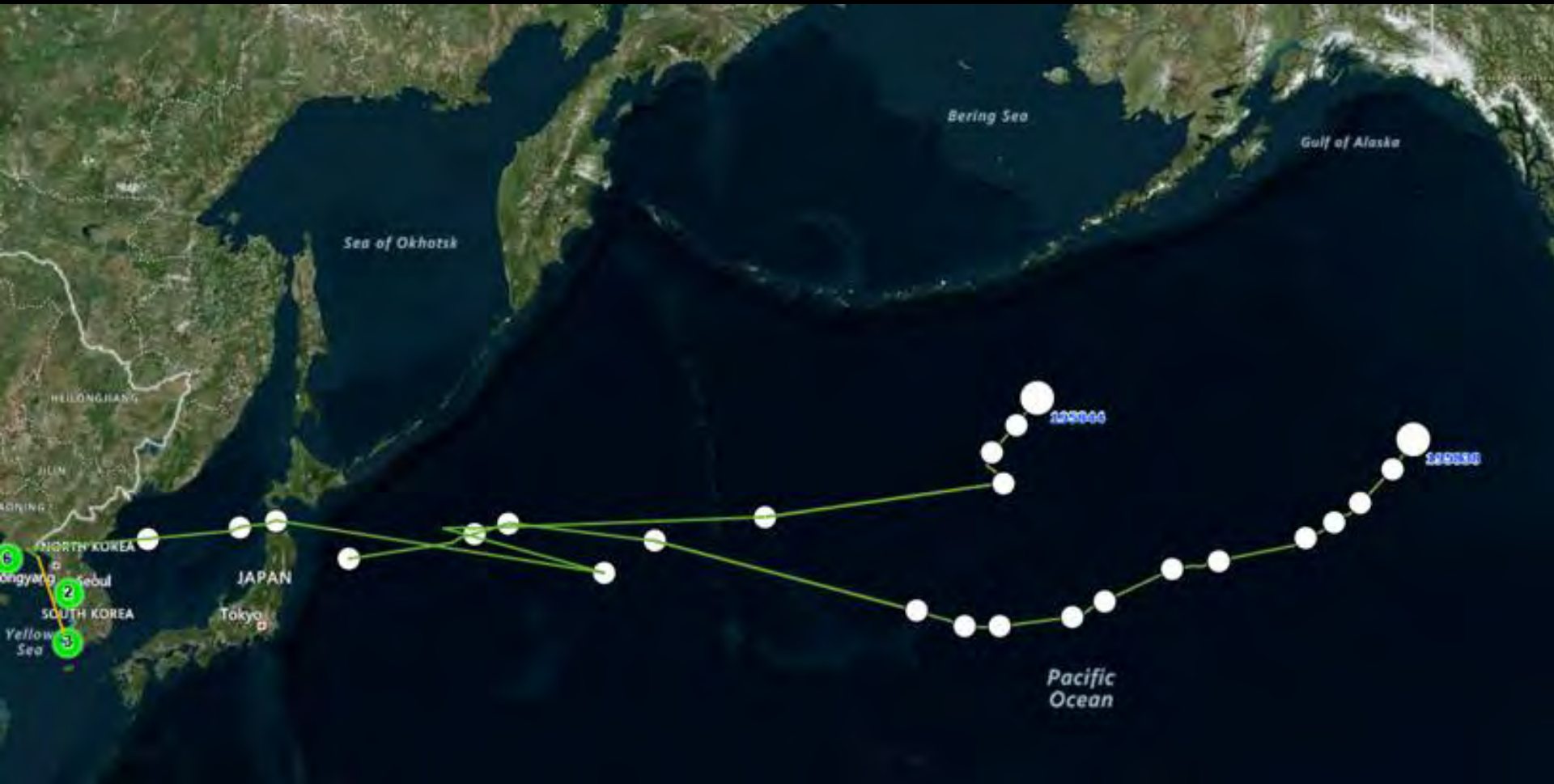
They still require tough, on and in the mud, research on crucial 'boundary conditions', especially food

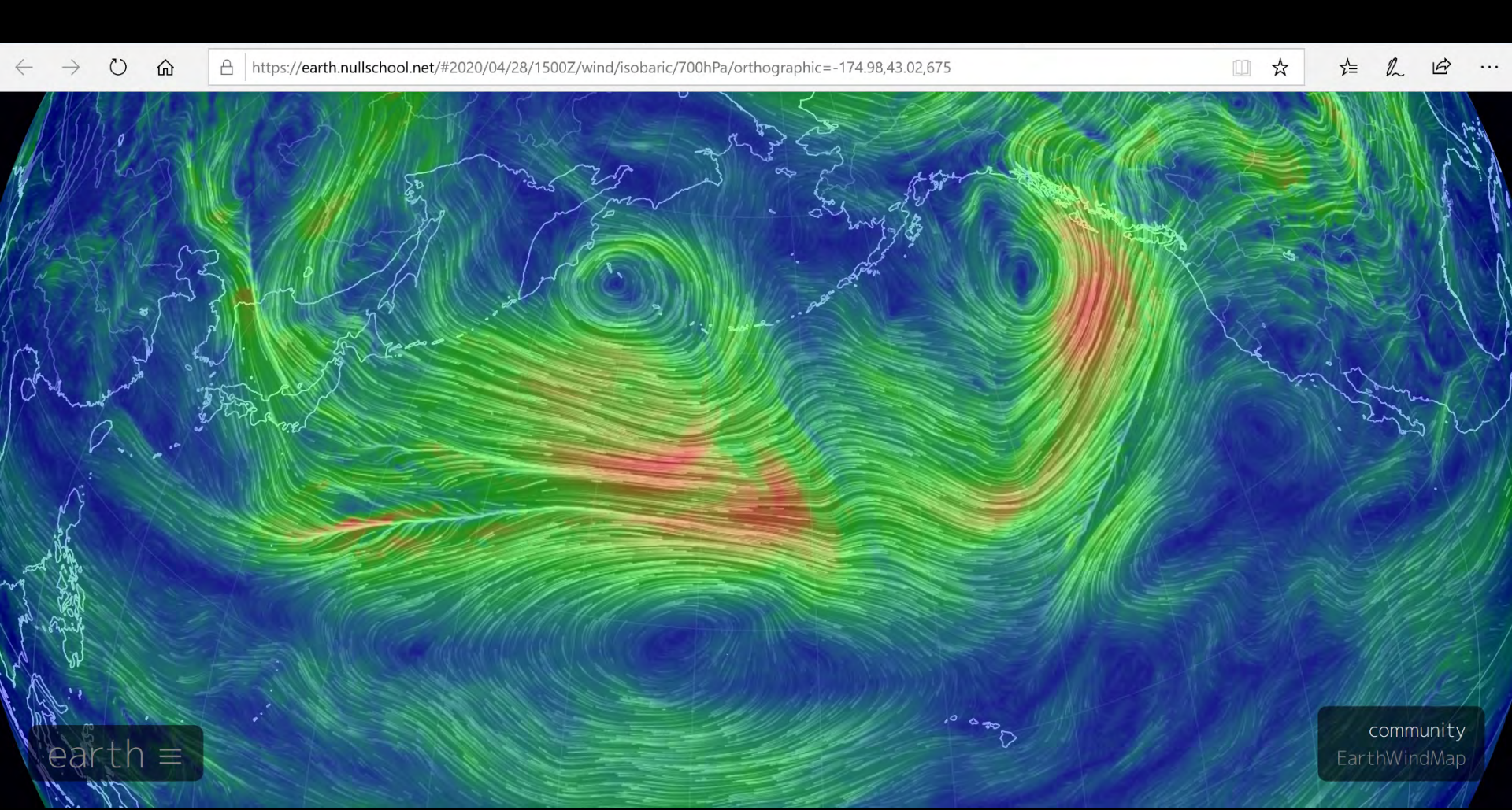
Bringing Good Connections to Life

Photo: Jan van de Kam

Photo: Jesse Conklin

BREAKING NEWS: where are 4BBWY and YCA right now?

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