



Problematik von Rückenwindlandungen aufgezeigt anhand des Flugunfalls Piper HB-OQH vom 20.11.2004 in Florenz

**Prof. Dr.iur. Roland Müller, Rechtsanwalt/Fluglehrer
Titularprofessor für Privat- und Wirtschaftsrecht
sowie Luftrecht an der Universität St.Gallen**

Flug einer Piper von Lugano nach Florenz

An Bord der Piper PA 28R Arrow III waren 3 Personen.
Der Flug war privat nach Sichtflugregeln



Einschränkungen zur Landung mit Rückenflug

Regulatorische Einschränkungen:

FAR 25:	10 kts without specific flight testing
AFM Piper PA 28R:	keine Beschränkung
AFM A 319	15 kts

Im Handbuch der Piper PA 28R Arrow III finden sich keine Einschränkungen bezüglich Rückenflug. Den Piloten war auf Grund ihrer Ausbildung aber bekannt, dass pro 2 kts Rückenwind die Landestrecke um 10% höher wird. Bei 8 kts Rückenwind ergibt dies eine Verlängerung der Landestrecke um 40%. Ohne Wind beträgt die Landestrecke einer PA 28R über 15 m Hindernis 440m. Bei 8 kts Rückenwind sind es 616m.

Landung in Florenz nach Airbus A 319

Beim Anflug auf Florenz hört der Pilot um 10:12 Uhr am Funk, dass vor ihm ein Airbus A 319 die Bewilligung erhält, auf der Piste 23 zu starten. Er rechnet deshalb ebenfalls mit einer Landung auf der Piste 23.



Rückenwind von 8 Knoten bei der Landung

Um 10:15 erhält die HB-OQH vom Tower die Landeerlaubnis für Piste 23 mit dem Hinweis "040 8 Knoten", was Rückenwind bedeutet. Die Piste 23 ist 1'717m lang und damit mehr als doppelt so lang wie nötig.



Mögliche Gefahren bei Rückenwindlandung (1)

Der Pilot entschliesst sich zur Landung auf der Piste 23. 30 Sekunden ist er über der Pistenschwelle. Da der Airbus 5 Minuten vor ihm gestartet ist, muss er nicht mehr mit der Gefahr von Wirbelschleppen rechnen.



Mögliche Gefahren bei Rückenwindlandung (2)

Als die Piper noch ca. 5 m über der Pistenschwelle ist, wird sie plötzlich nach links abgetrieben. Die Steuerruder sind wirkungslos. Dann kracht das Flugzeug 160m links von der Pistenschwelle gegen den Flugplatzzaun. Die Insassen werden schwer verletzt. Was ist geschehen?



COMMUNICATIONS

10:09:56 FROM TWR TO ISS3613 :

- 3613, DOPO L'AEROMOBILE CHE EFFETTUERA' UN BASSO, AUTORIZZATO AD ATTRAVERSARE LE ROSSE.
PER UN BACK-TRACK DUE TRE, DOPO.

10:10:04 FROM ISS3613 TO TWR :

- BACK-TRACK DOPO, MERER 3613.



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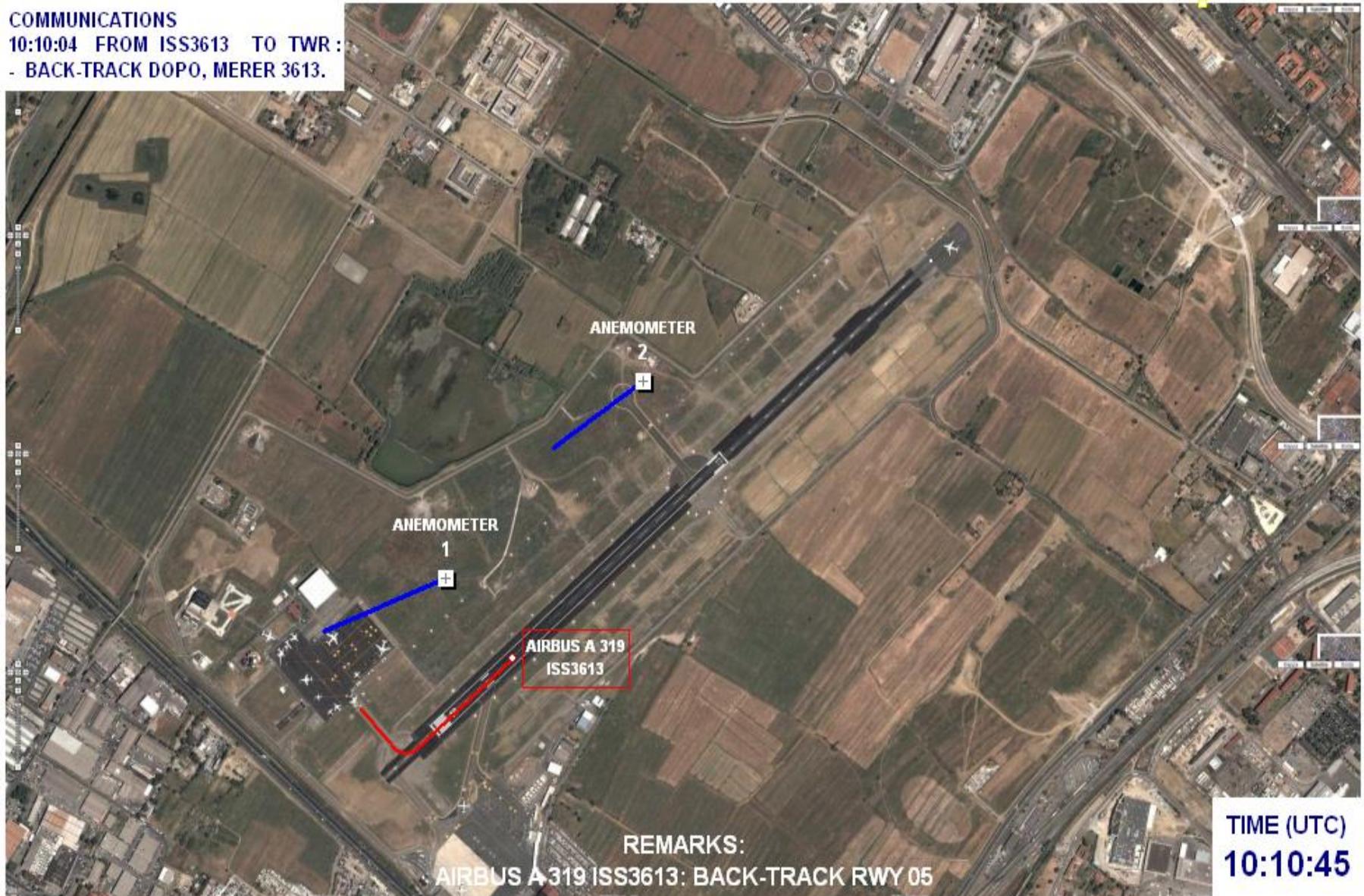




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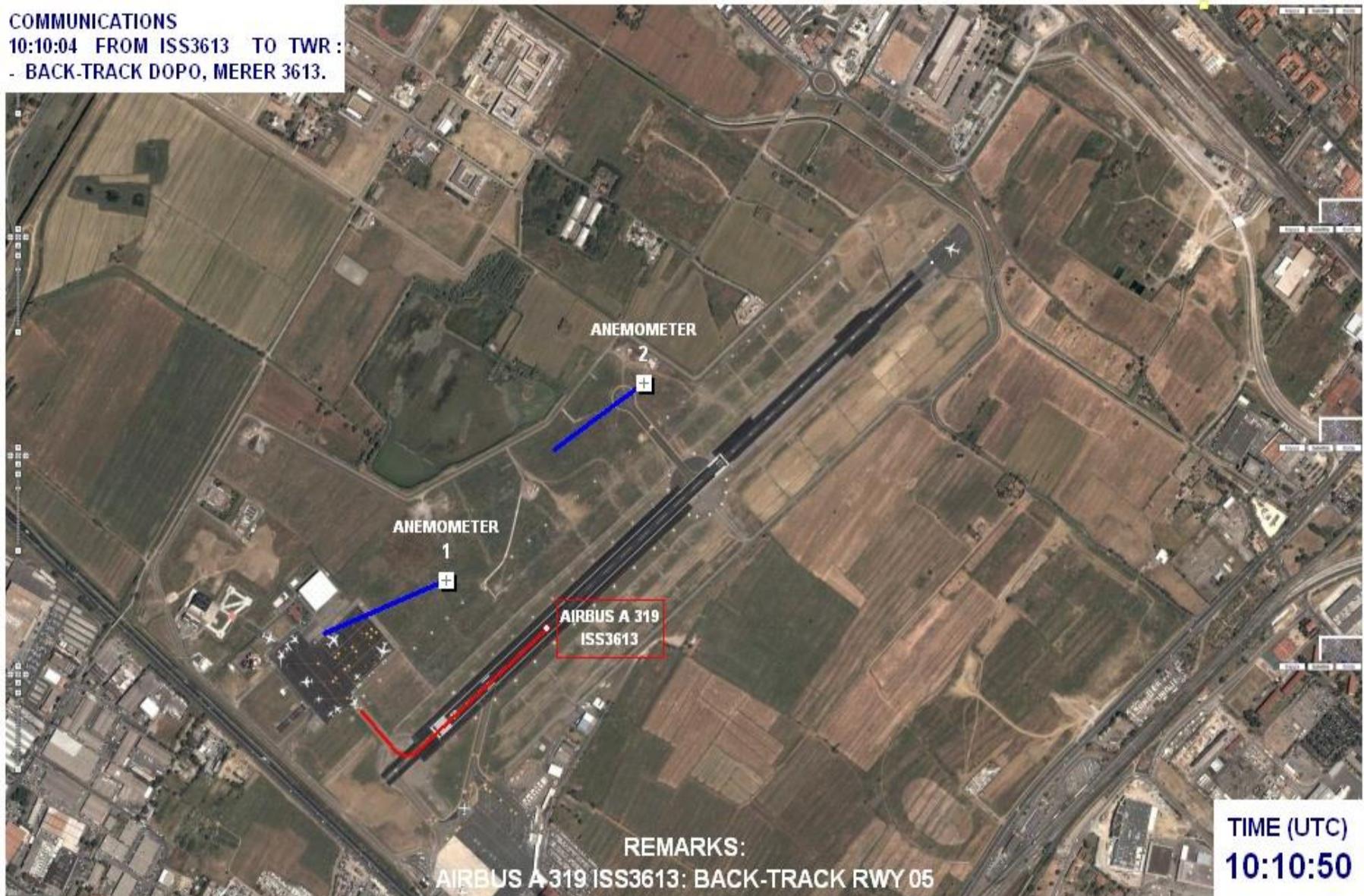
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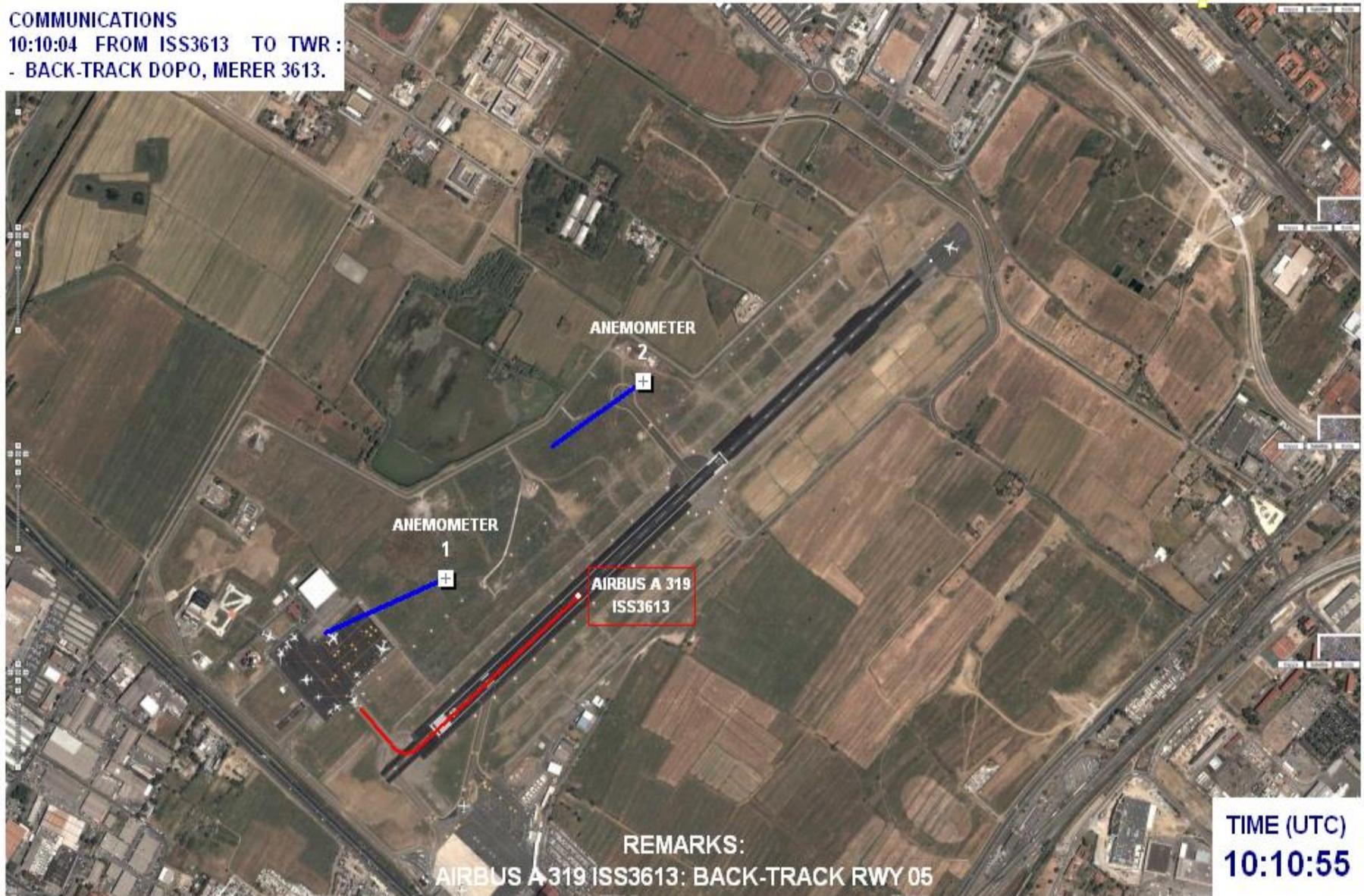
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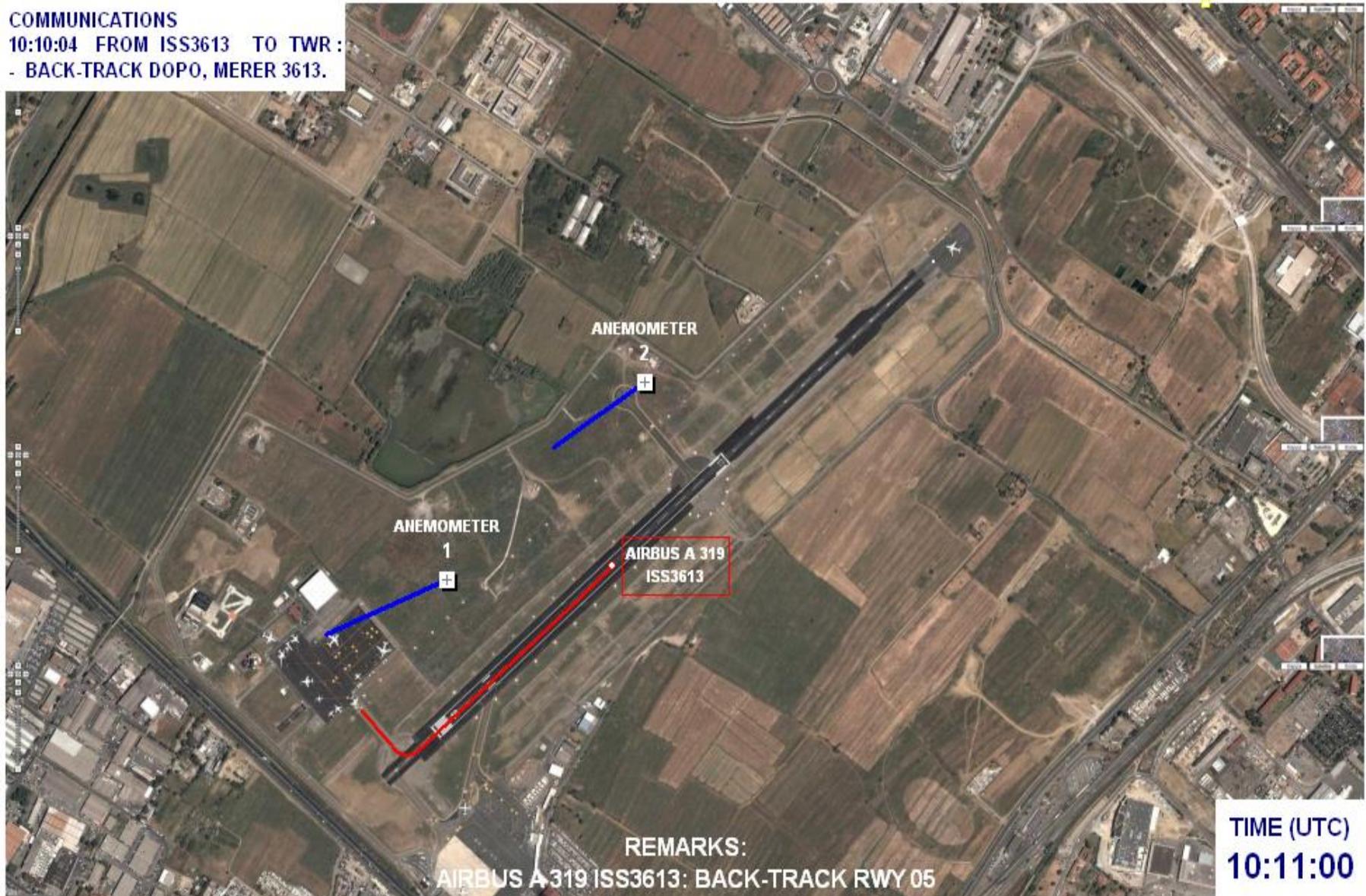
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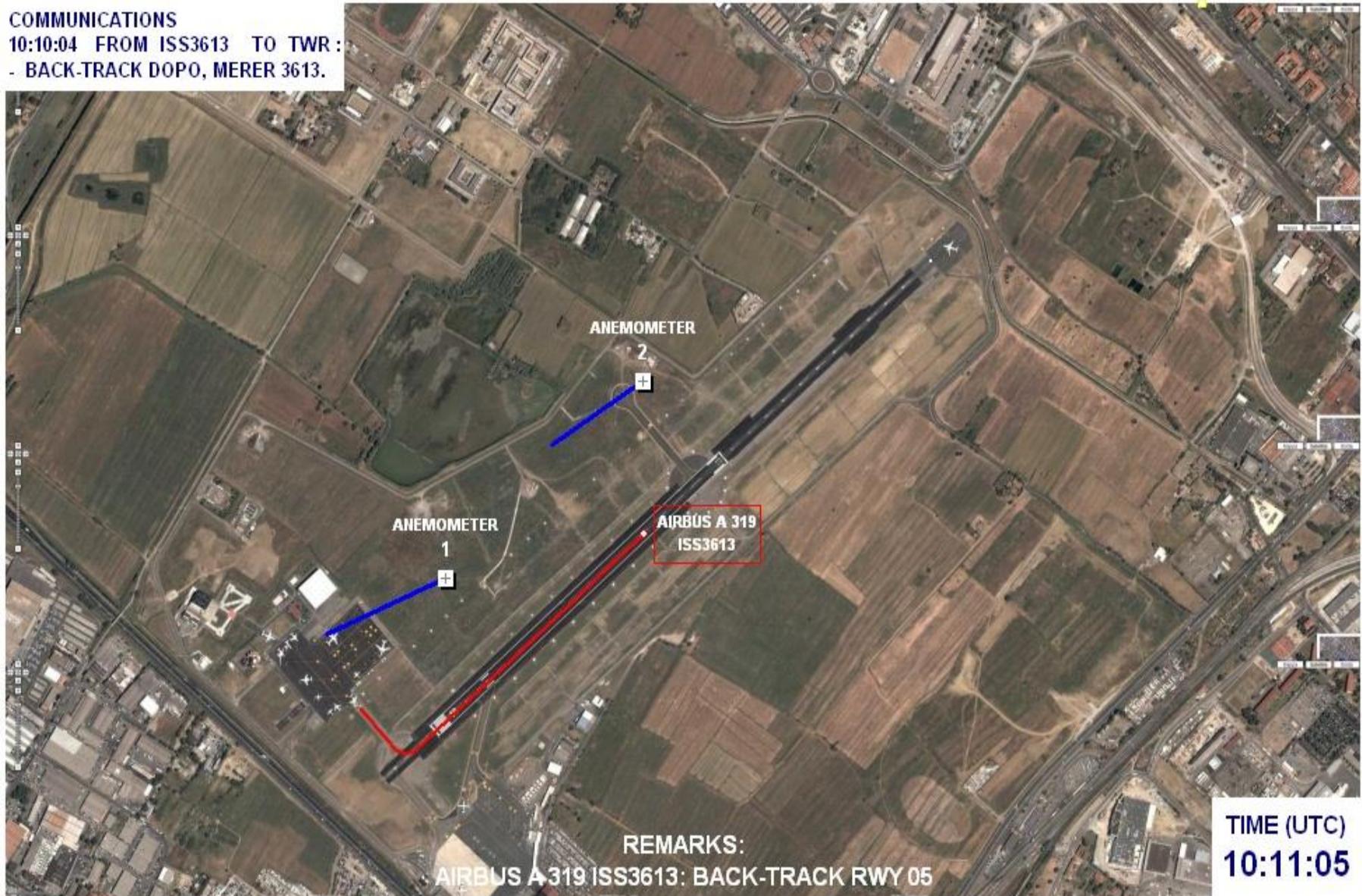
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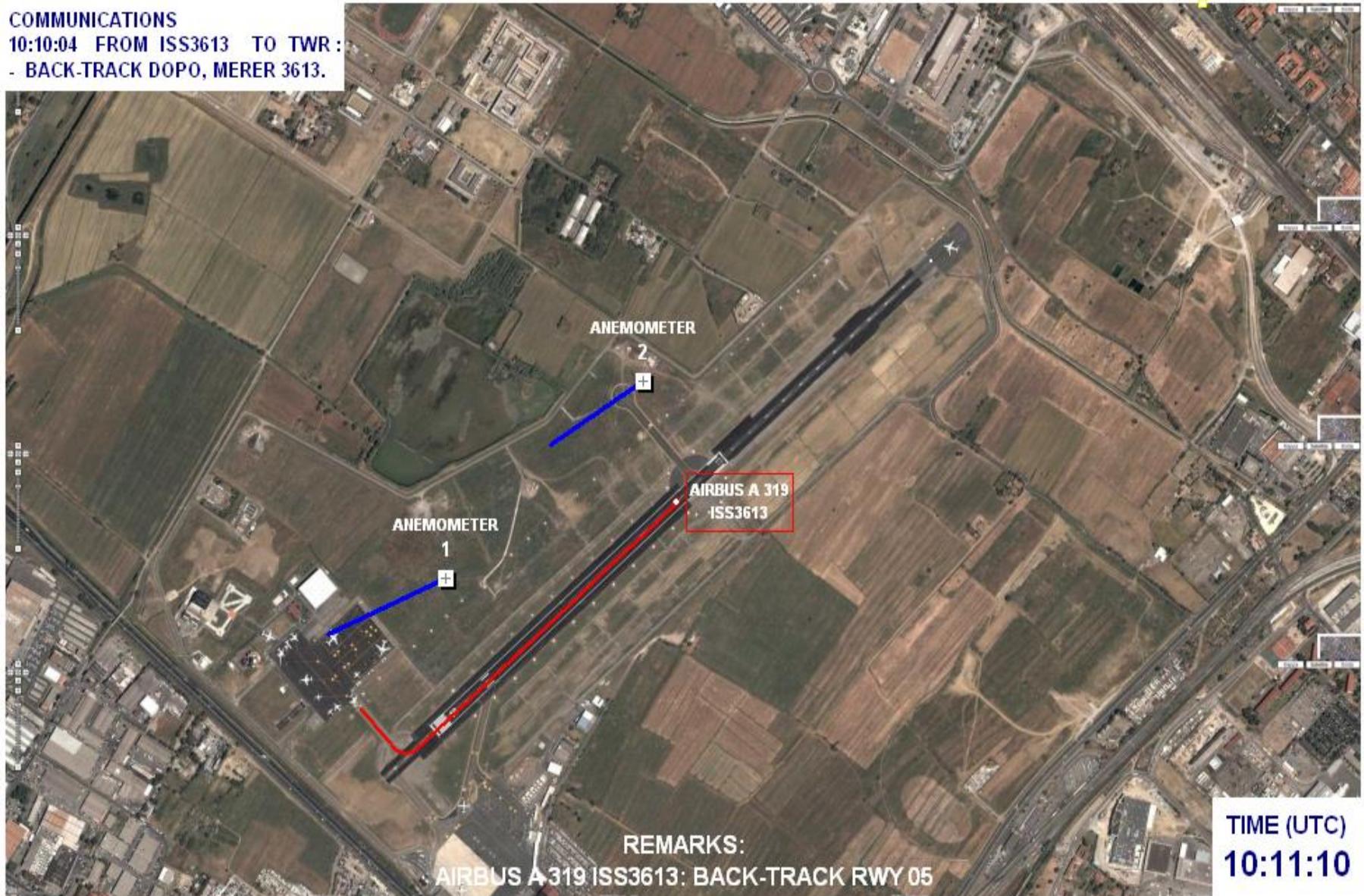
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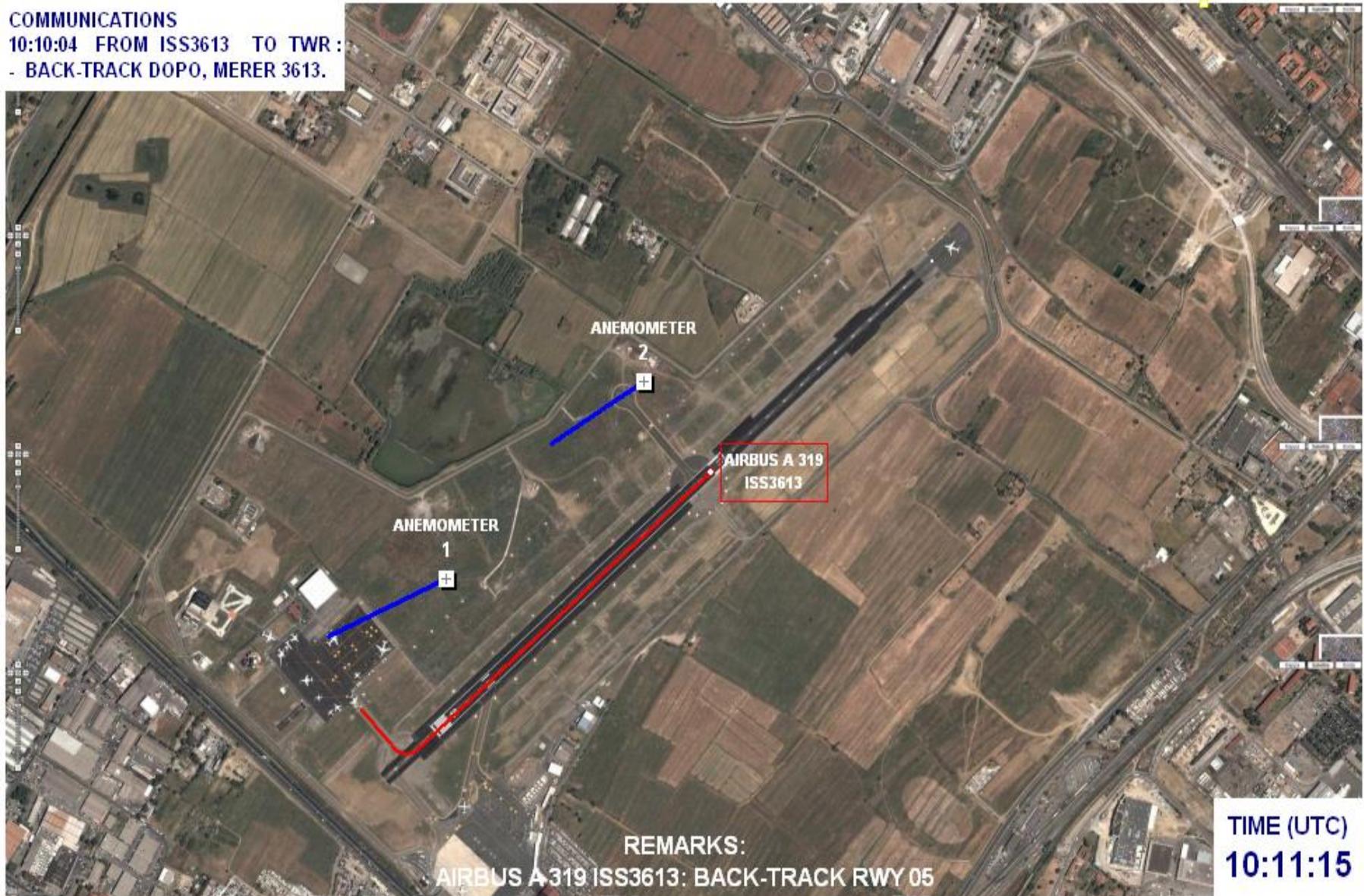
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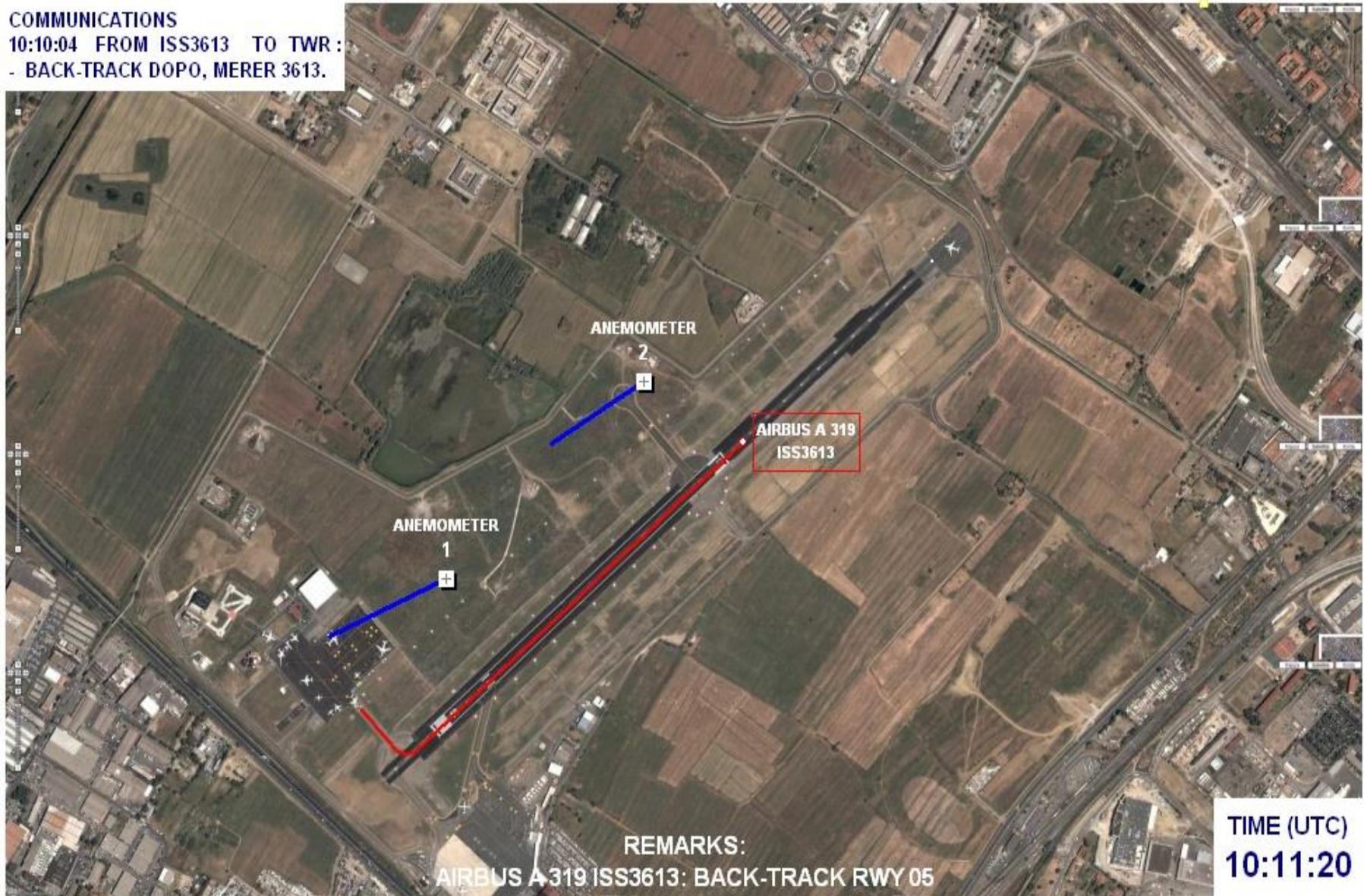
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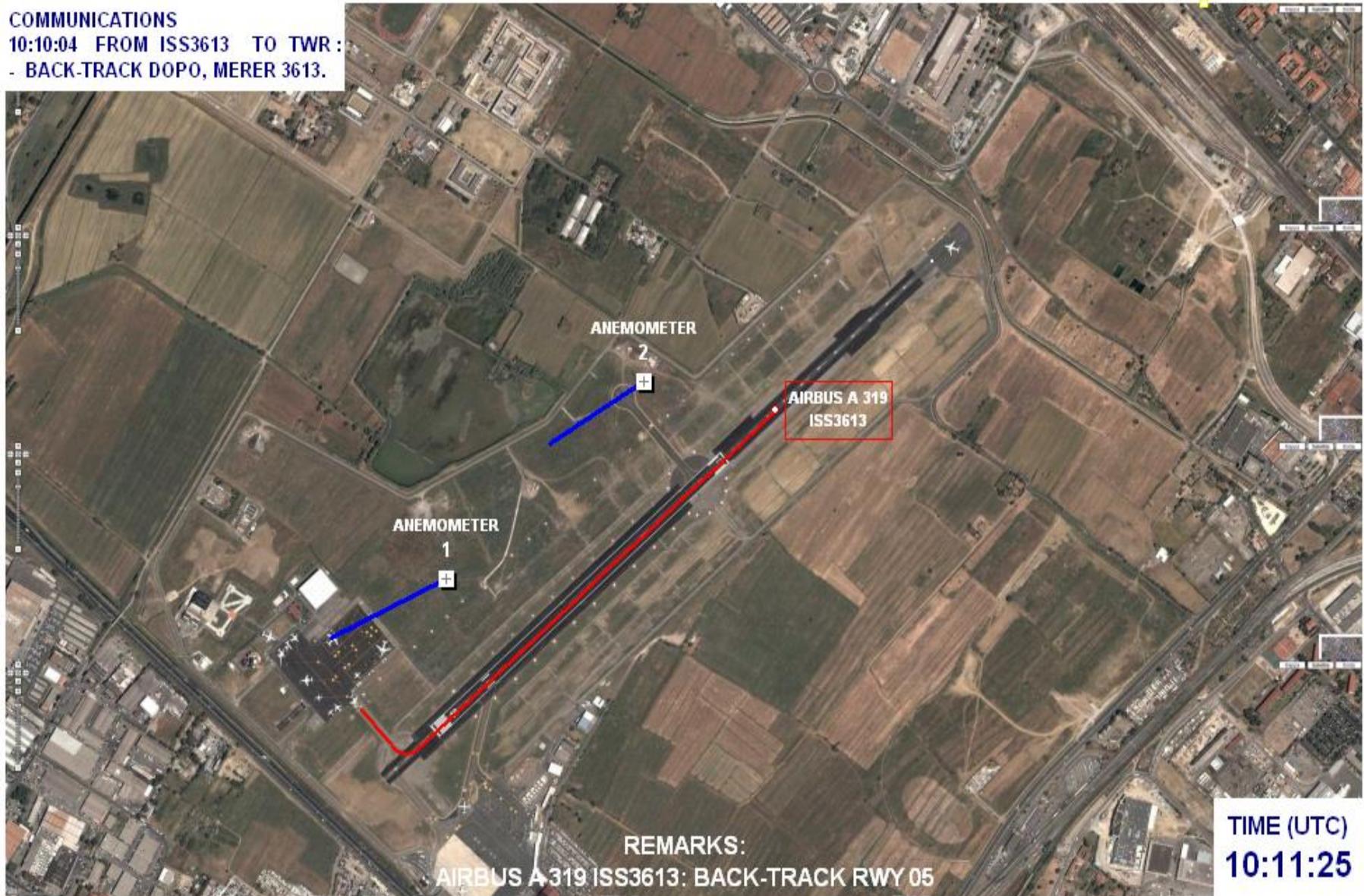
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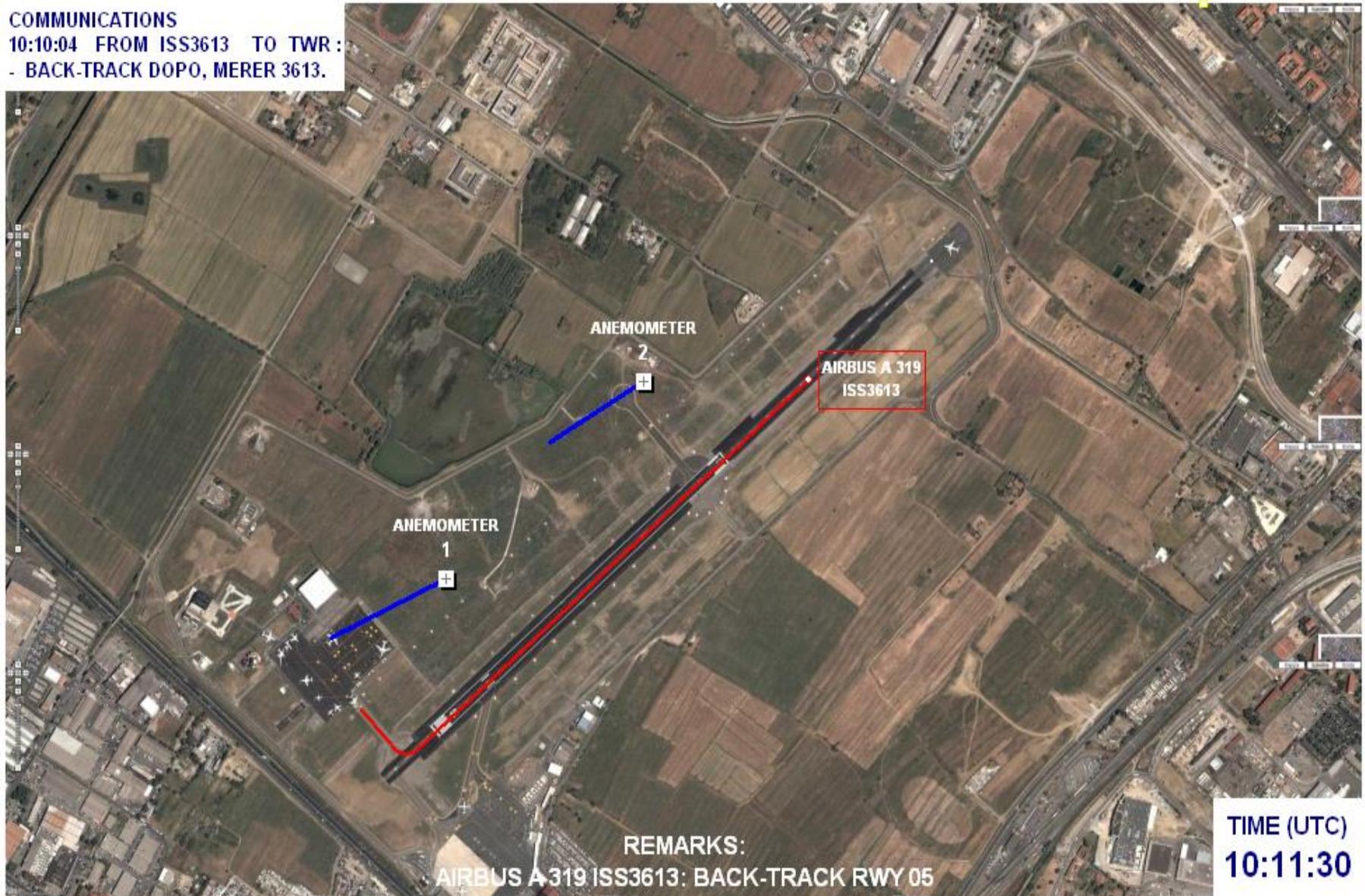
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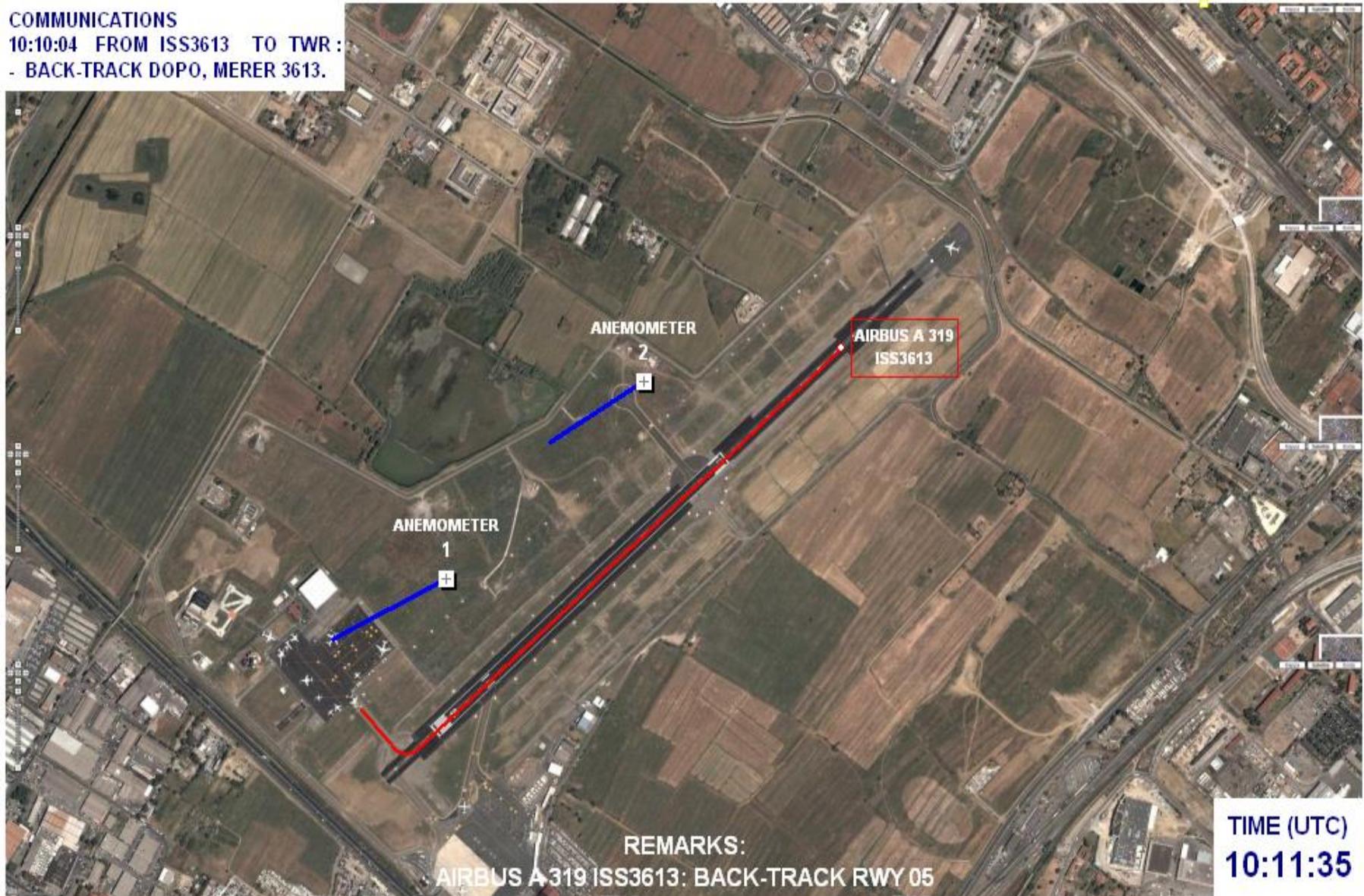
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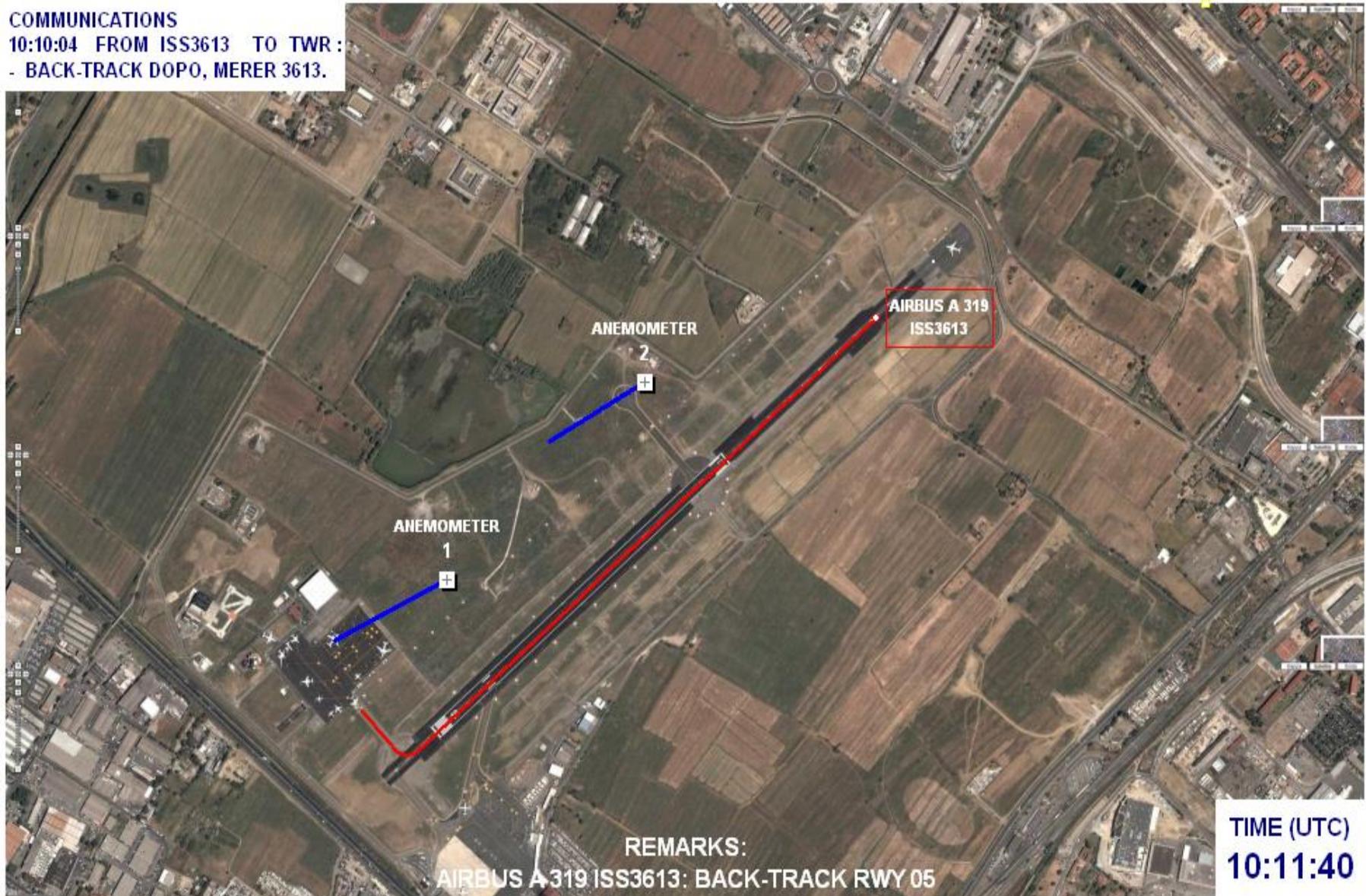
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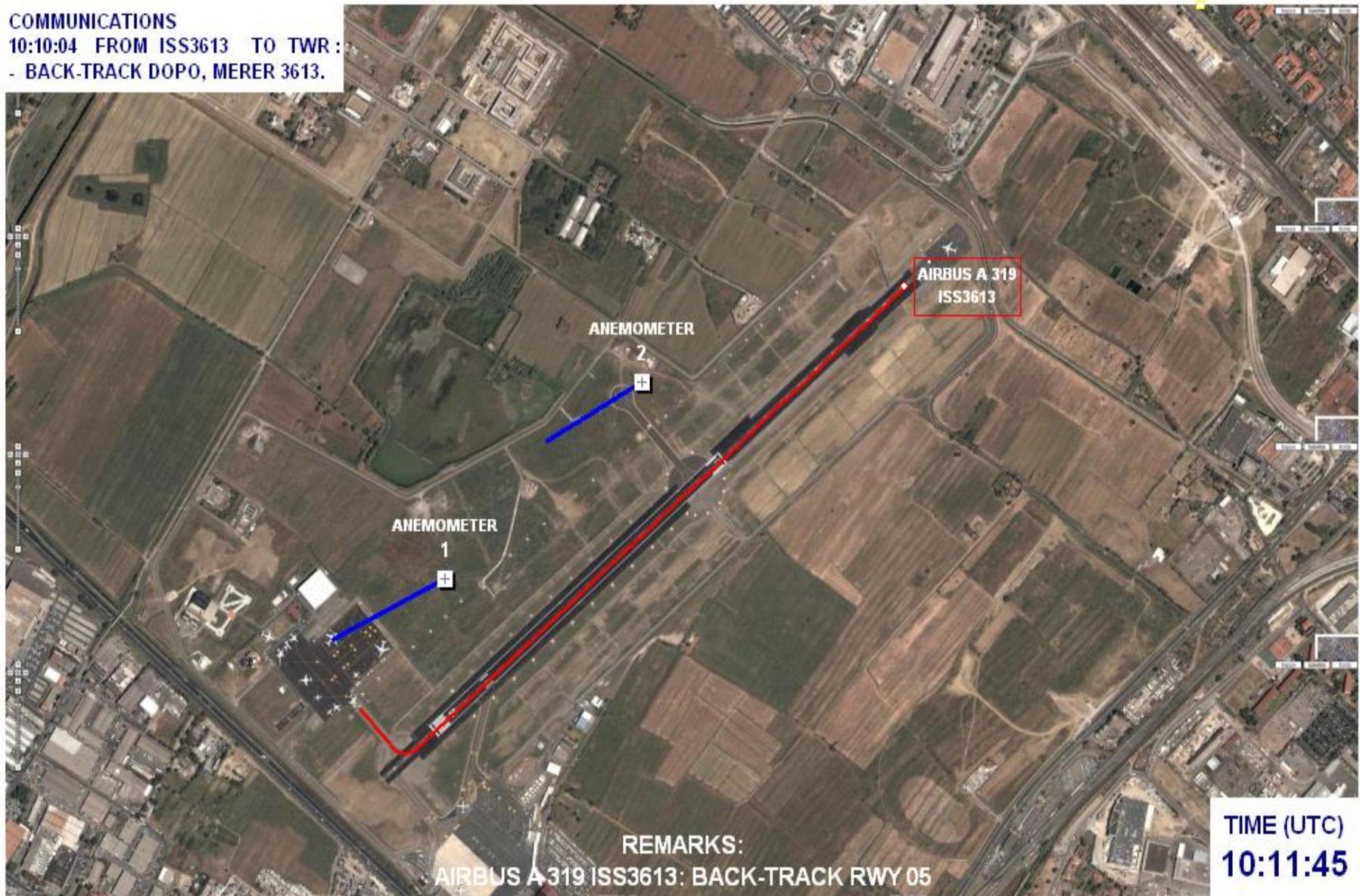
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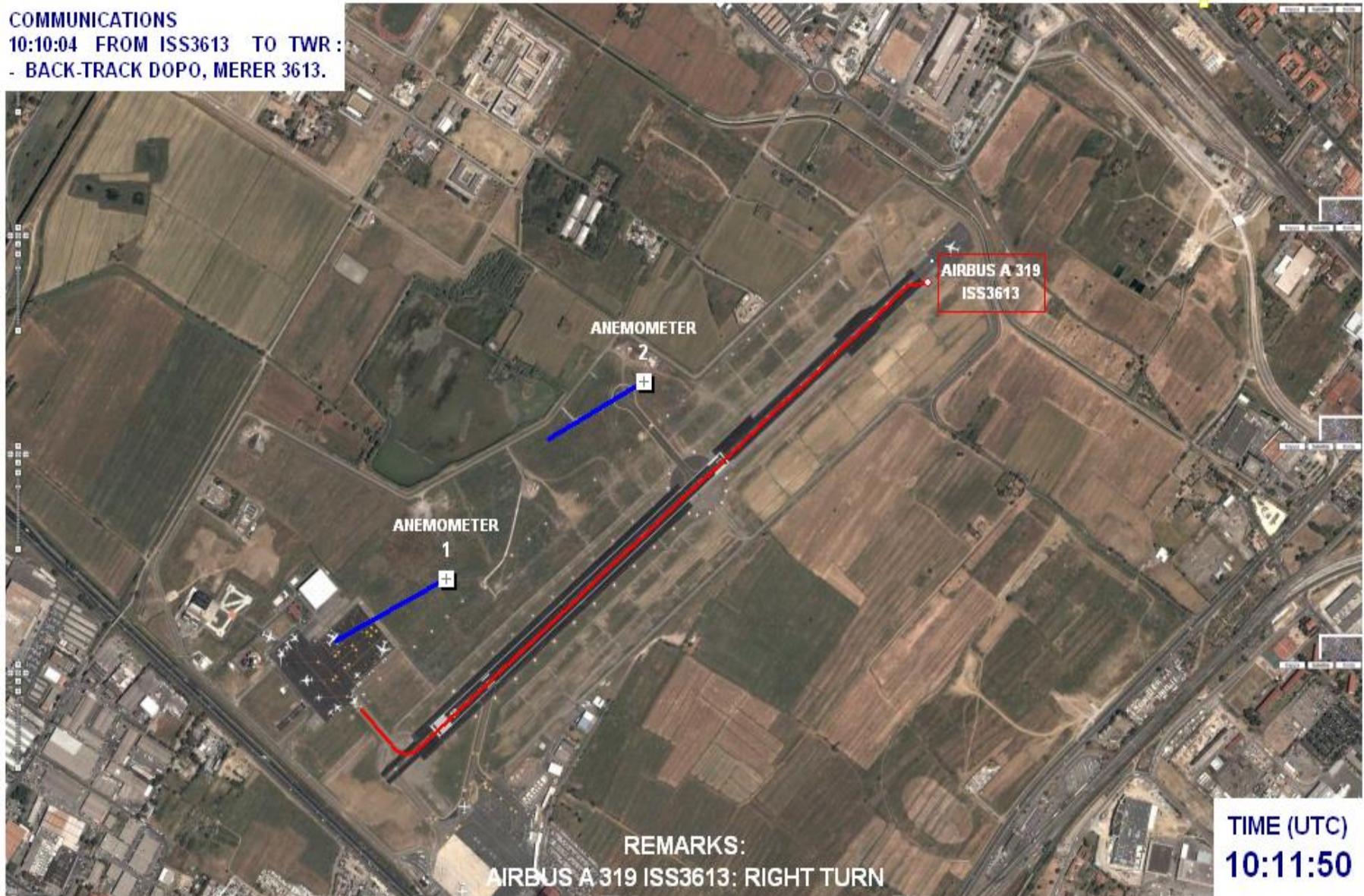
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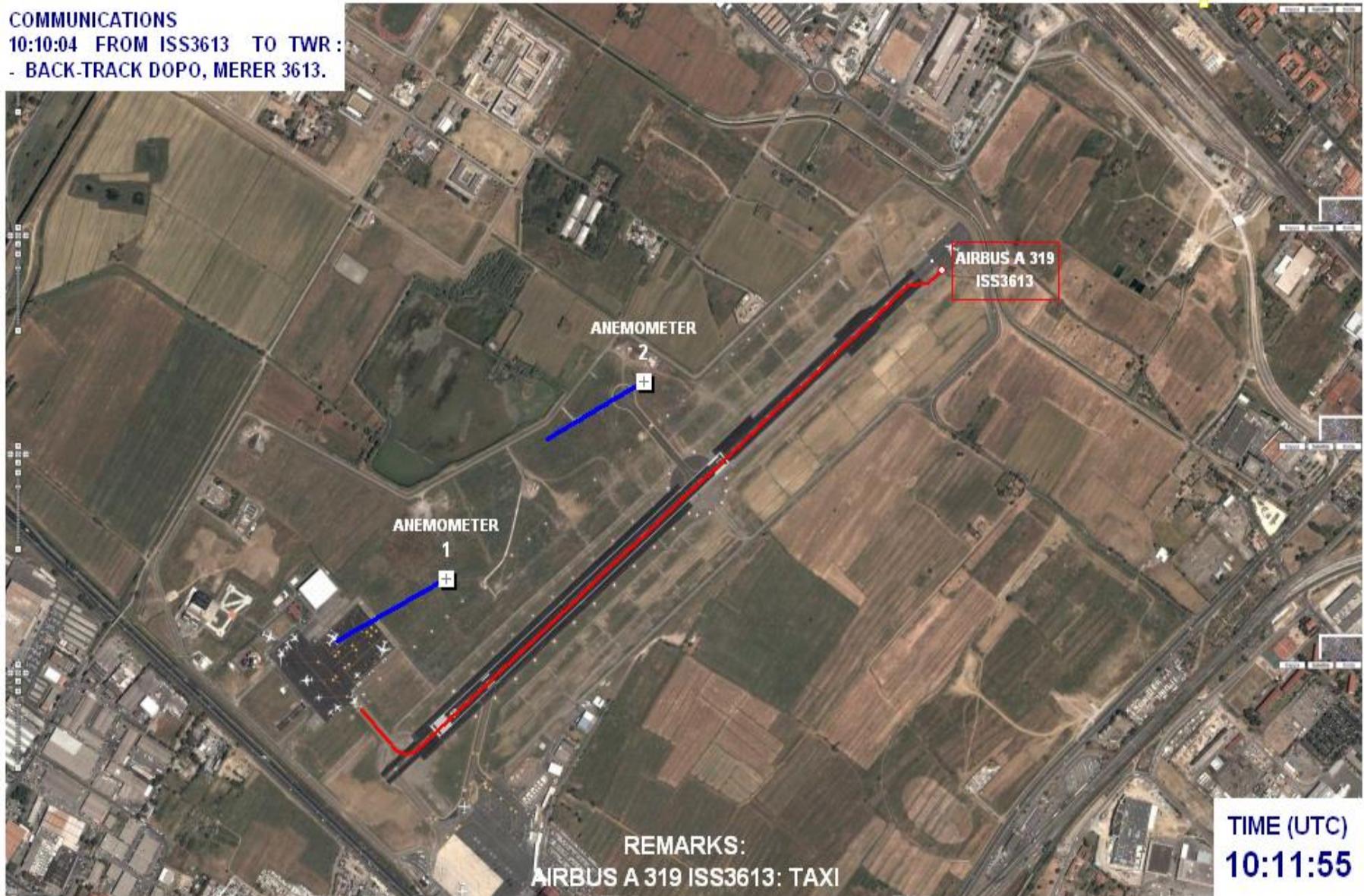
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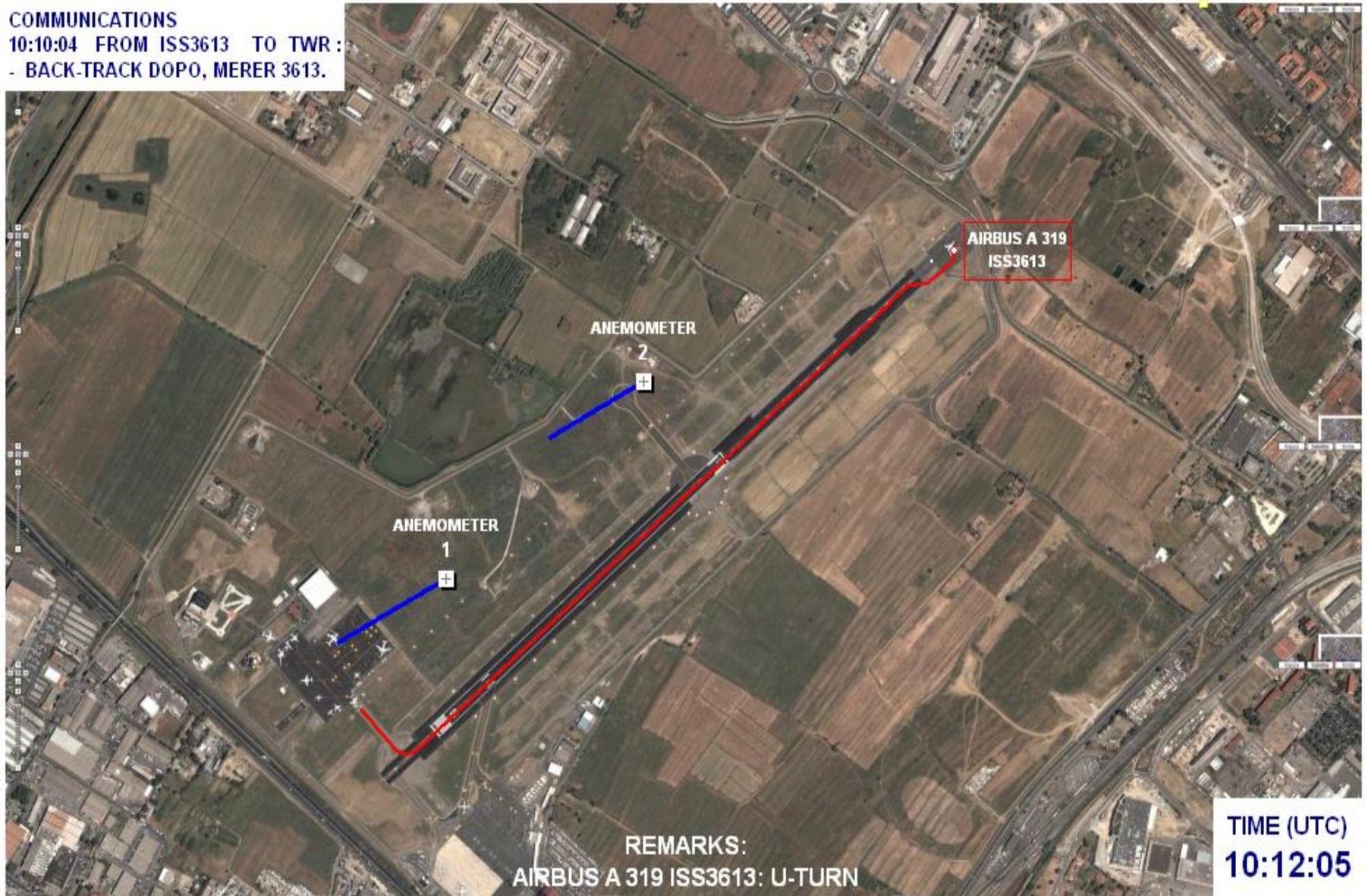
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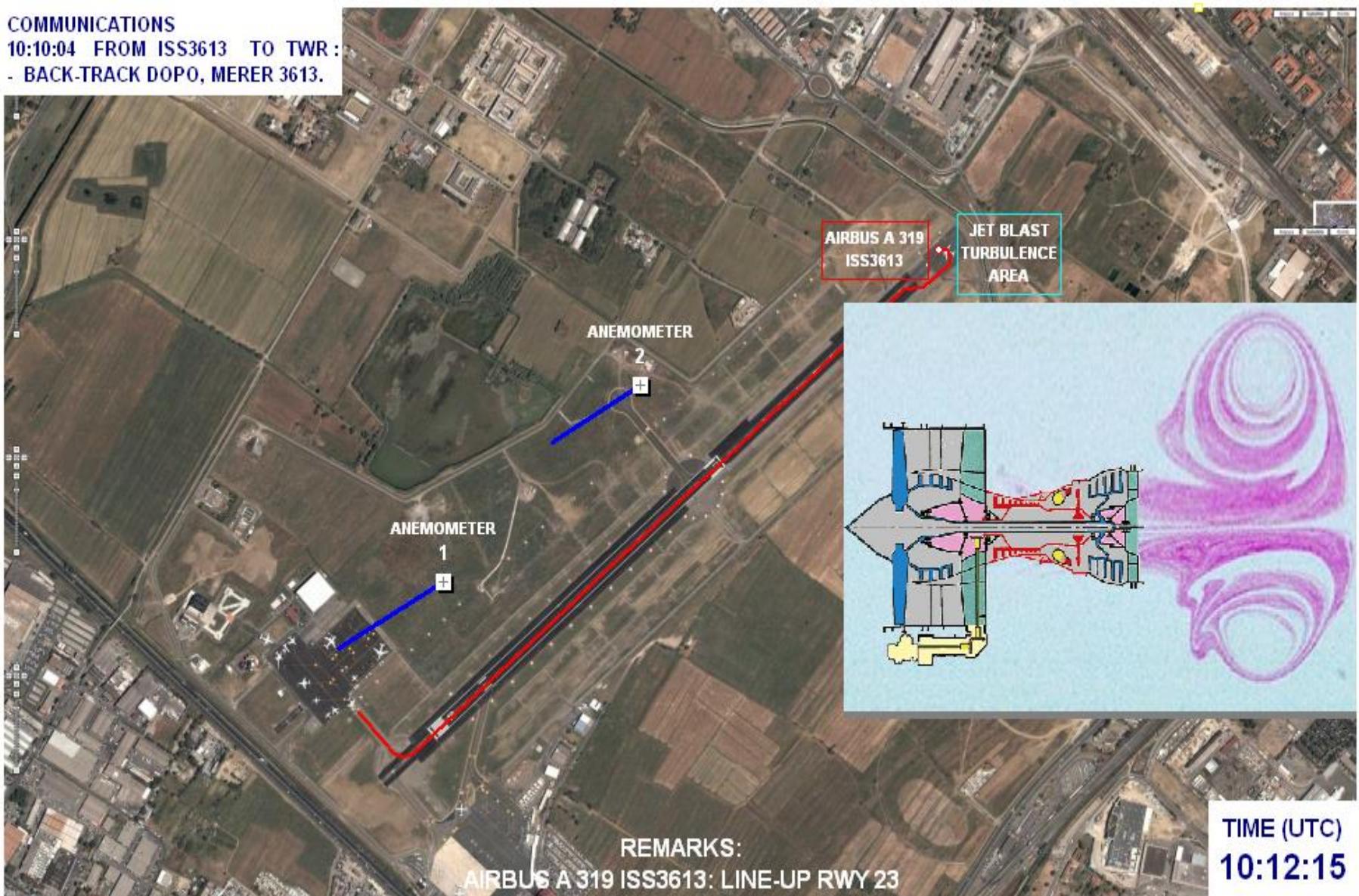
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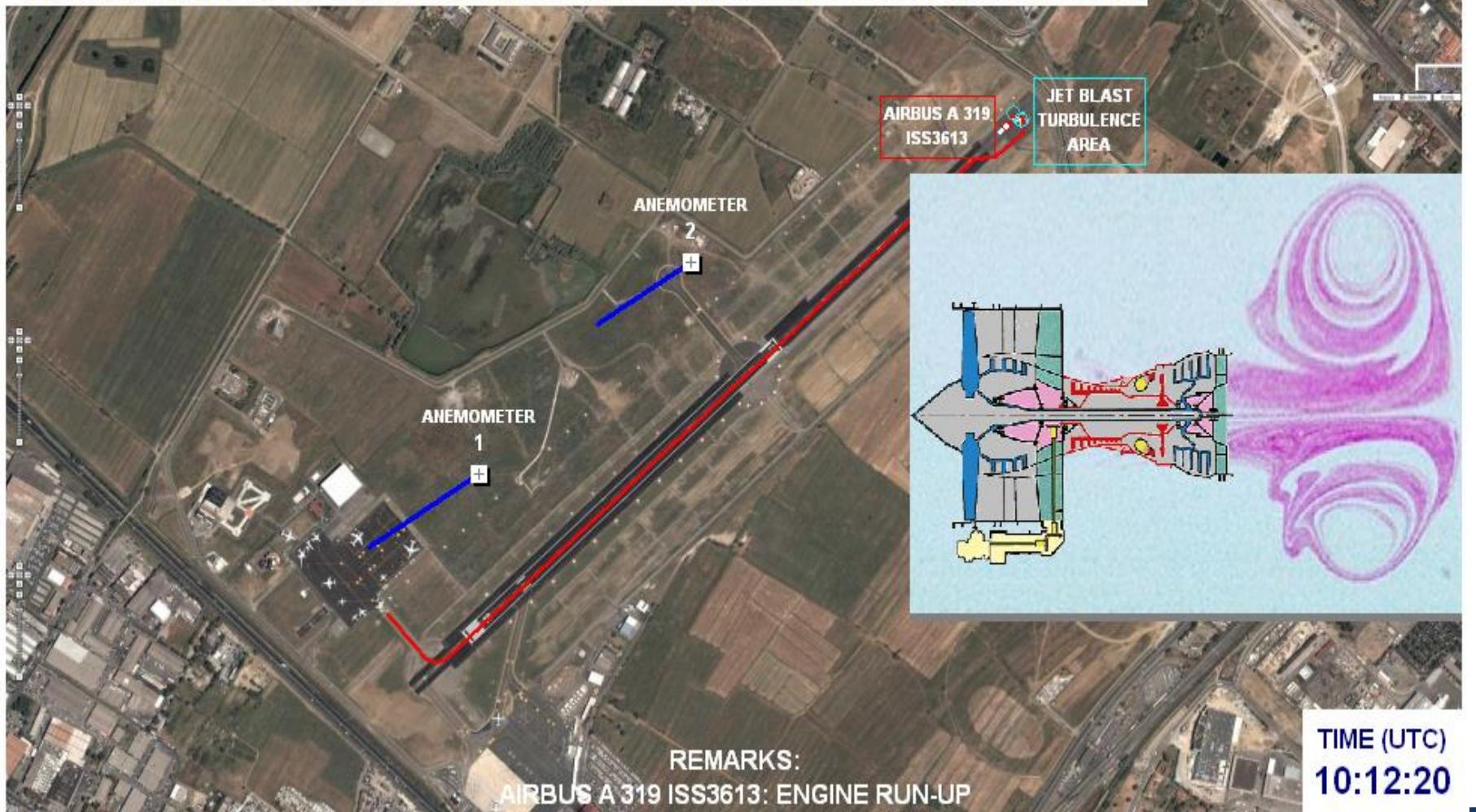
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10:12:20 FROM TWR TO ISS3613 :

- MERIDIANA 3613, AUTORIZZATI QUANDO PRONTI AL DECOLLO DUE TRE, VENTO ZERO QUATTRO ZERO CINQUE NODI.



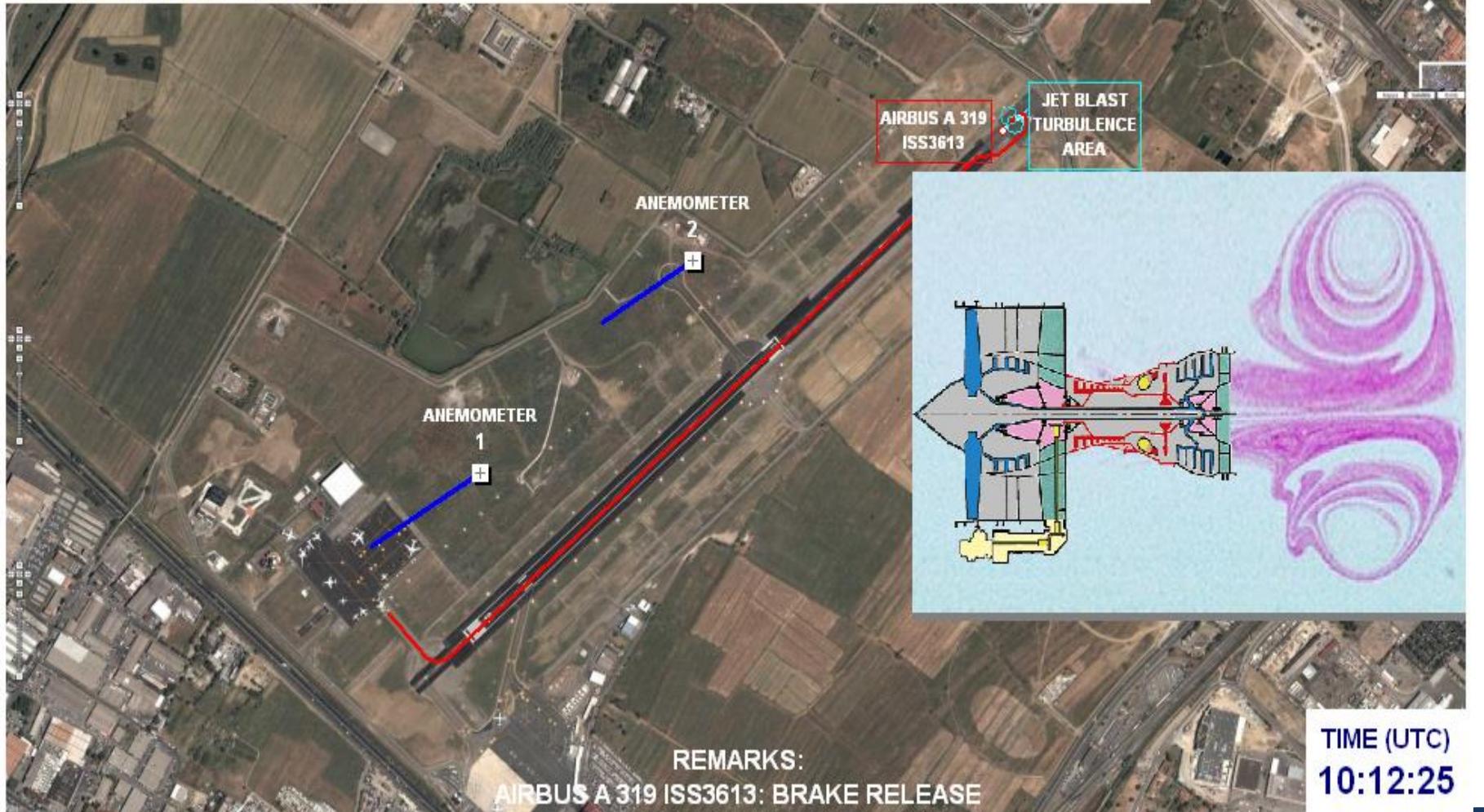
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10:12:27 FROM ISS3613 TO TWR :

- AUTORIZZATI AL DECOLLO DUE TRE, 3613.



COMMUNICATIONS

- 10:12:27 FROM ISS3613 TO TWR :
- AUTORIZZATI AL DECOLLO DUE TRE, 3613
10:12:31 FROM TWR TO HB-OQH :
- H-QH, RIPORTATE IL TRAFFICO IN PISTA IN VISTA.
10:12:34 FROM HB-OQH TO TWR :
- H-QH, ABBIAMO IL TRAFFICO IN VISTA.



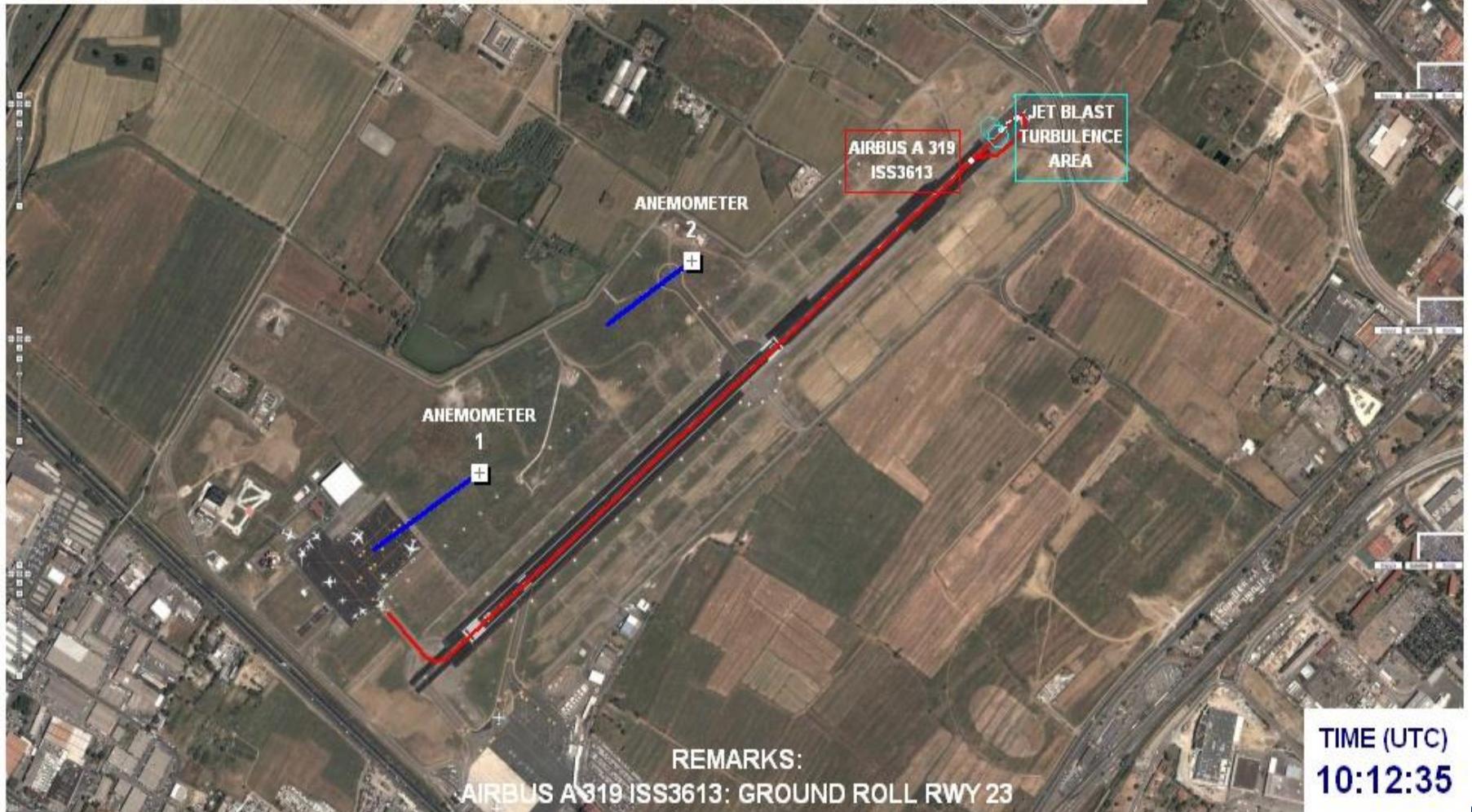
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10:12:34 FROM HB-OQH TO TWR :

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10:12:36 FROM TWR TO HB-OQH :

- RICEVUTO. RIPORTATE VIRANDO IN BASE VENTITRE, COMPATIBILMENTE CON IL TRAFFICO PER UN ATTERRAGGIO.



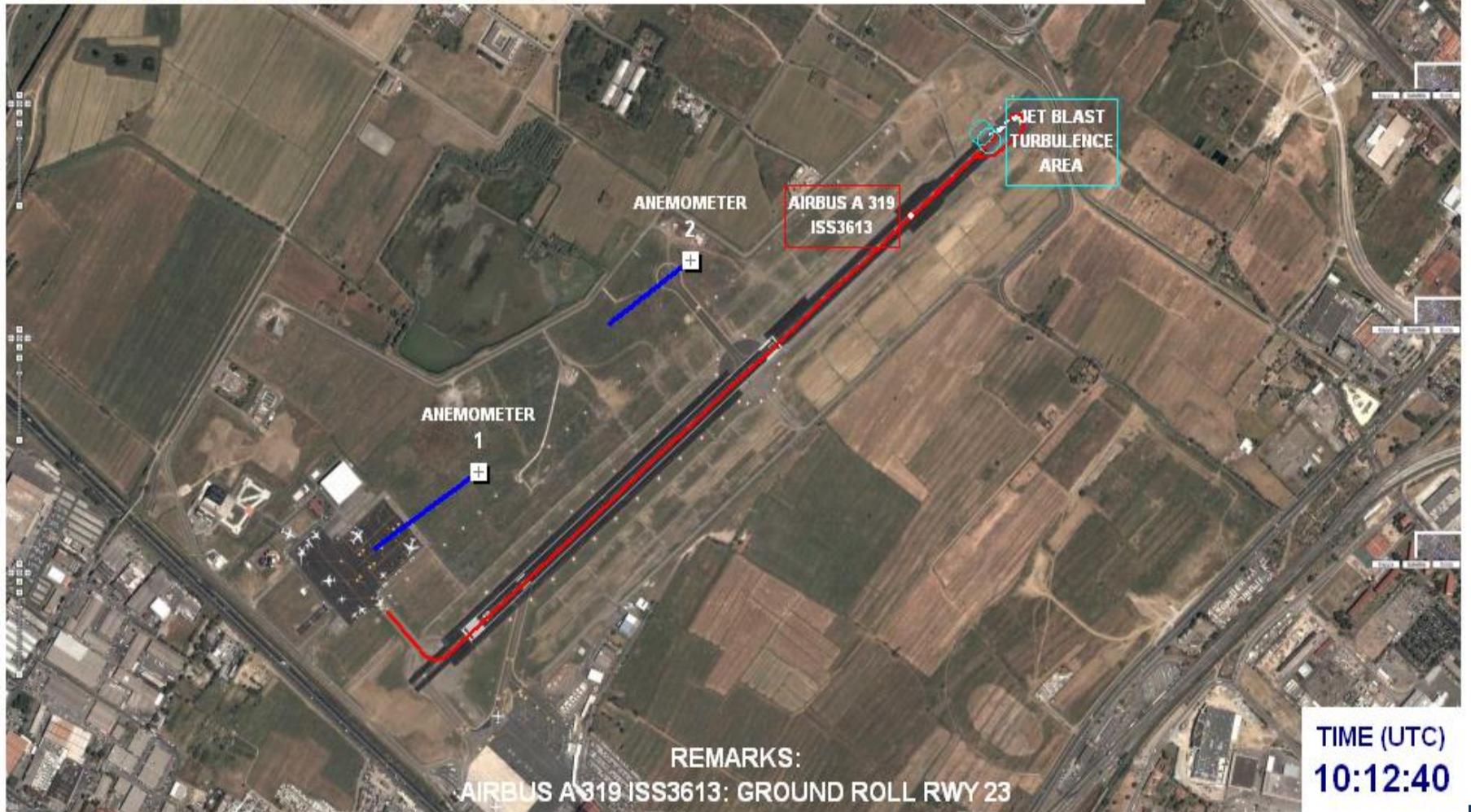
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10:12:36 FROM TWR TO HB-OQH :

- RICEVUTO. RIPORTATE VIRANDO IN BASE VENTITRE, COMPATIBILMENTE CON IL TRAFFICO PER UN ATTERRAGGIO.

10:12:44 FROM HB-OQH TO TWR :

- RICEVUTO. RIPORTEREMO VIRANDO IN BASE DESTRA, ...



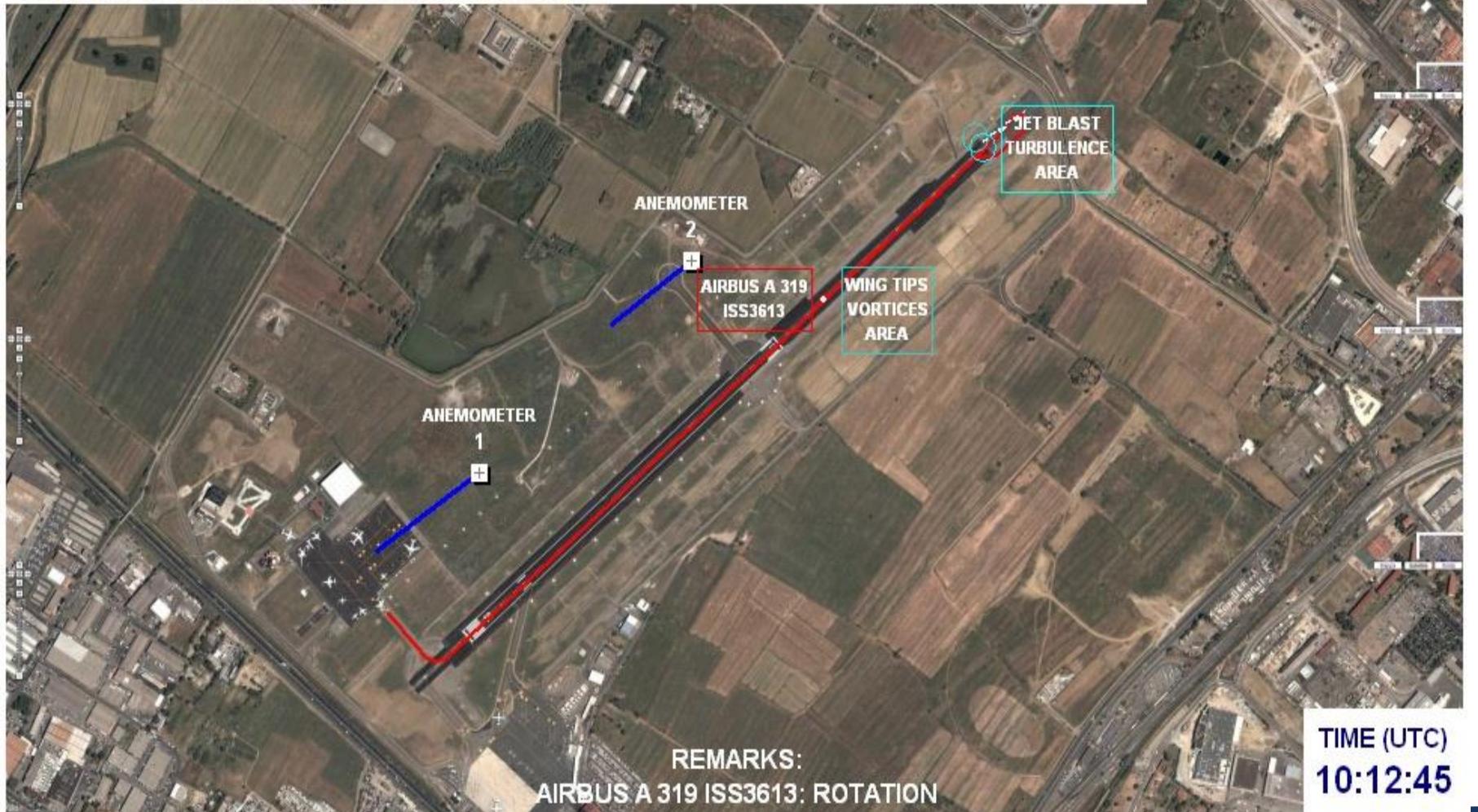
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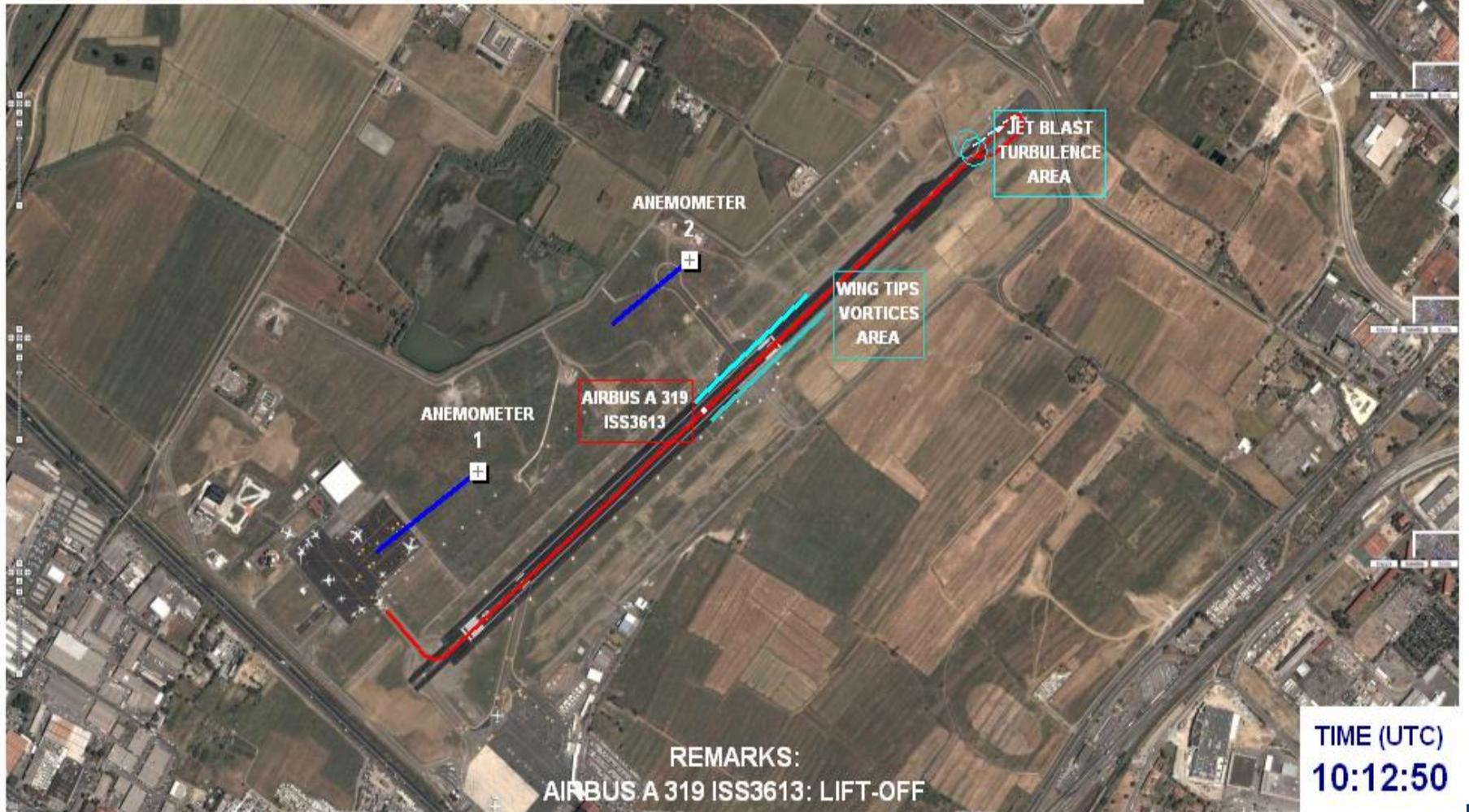
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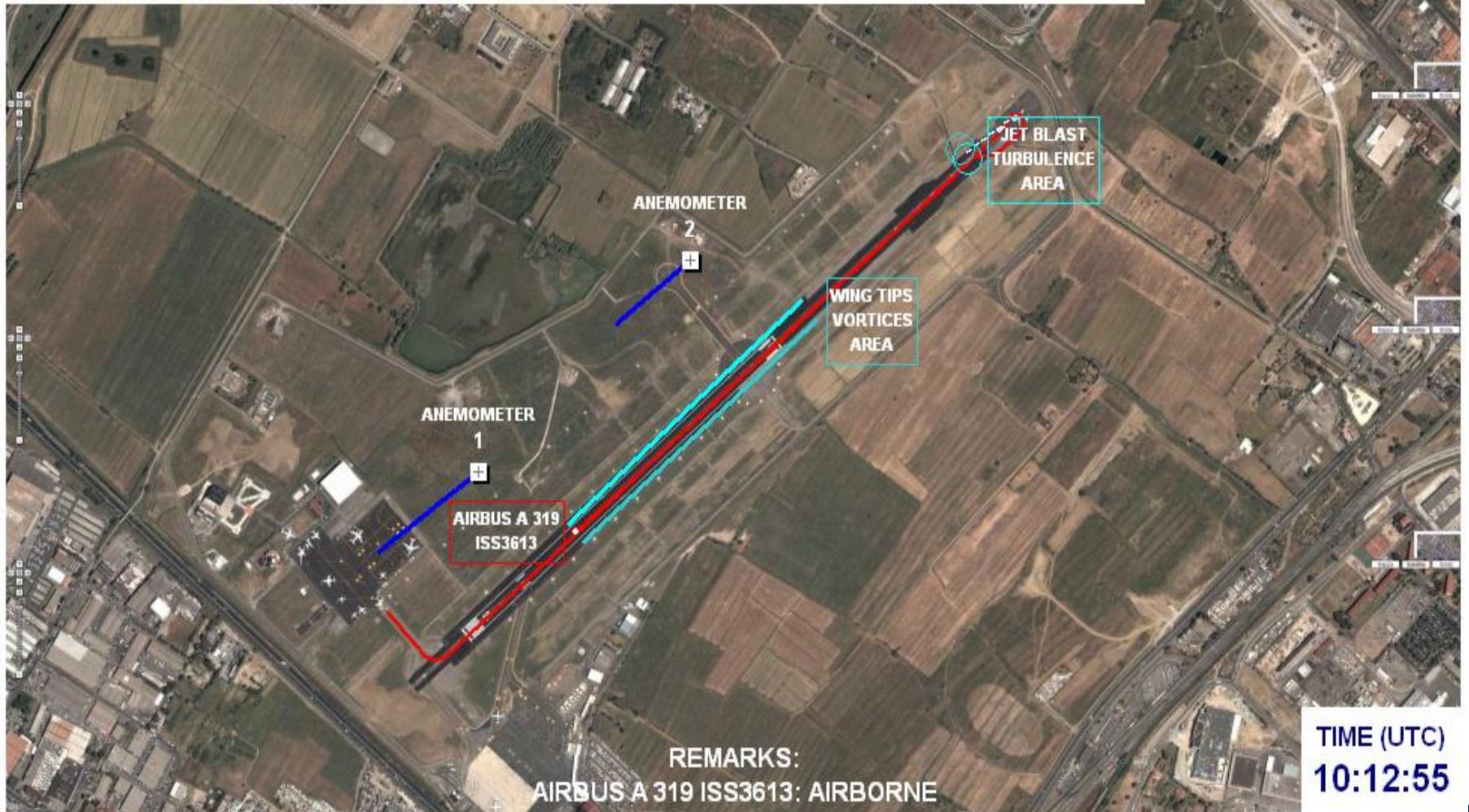
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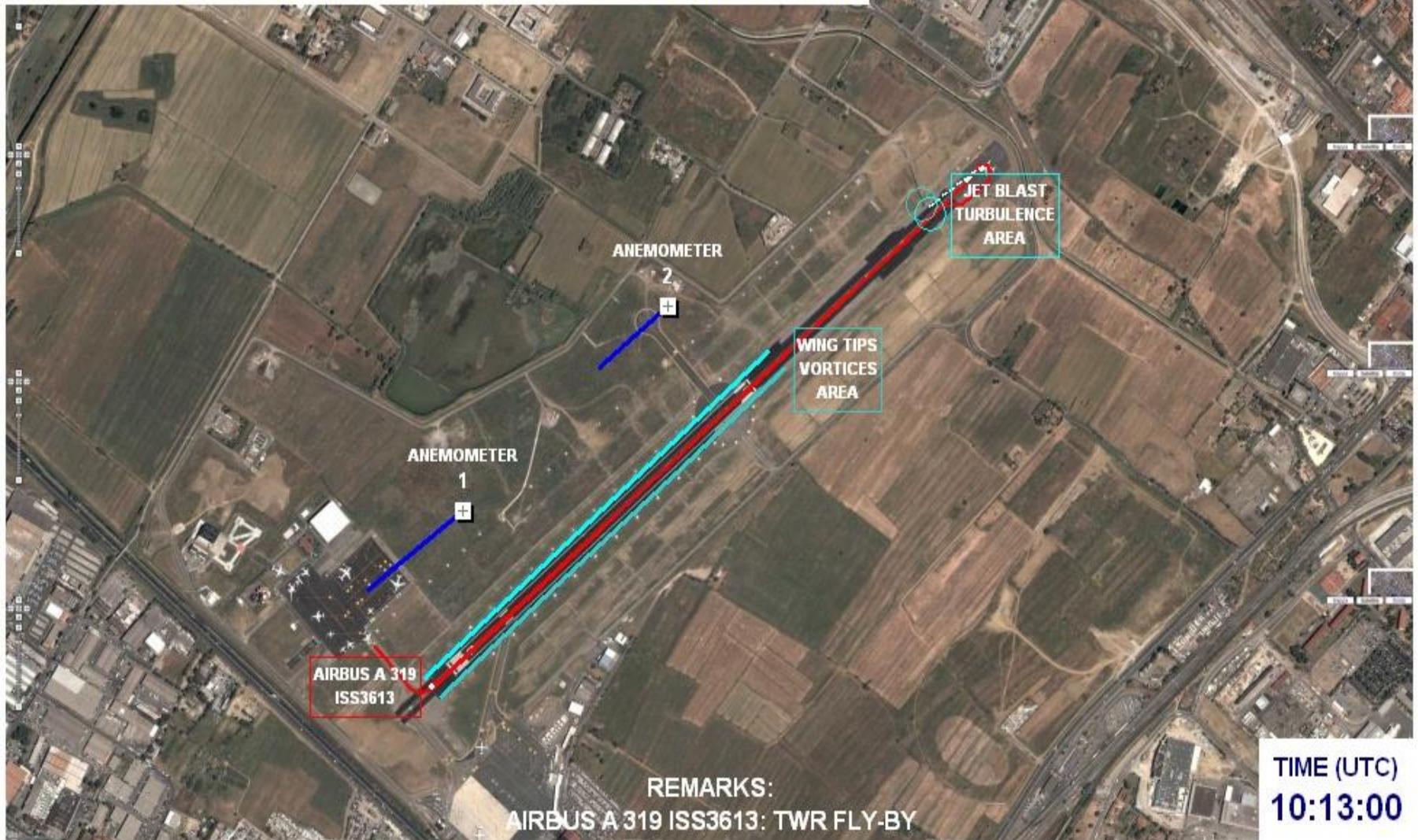
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10:13:18 FROM TWR TO HB-OHH :

- H-QH, UNO STIMATO AL FINALE DUE TRE?

10:13:21 FROM HB-OHH TO TWR :

- UNO STIMATO PER IL FINALE TRA UN MINUTO E MEZZO.



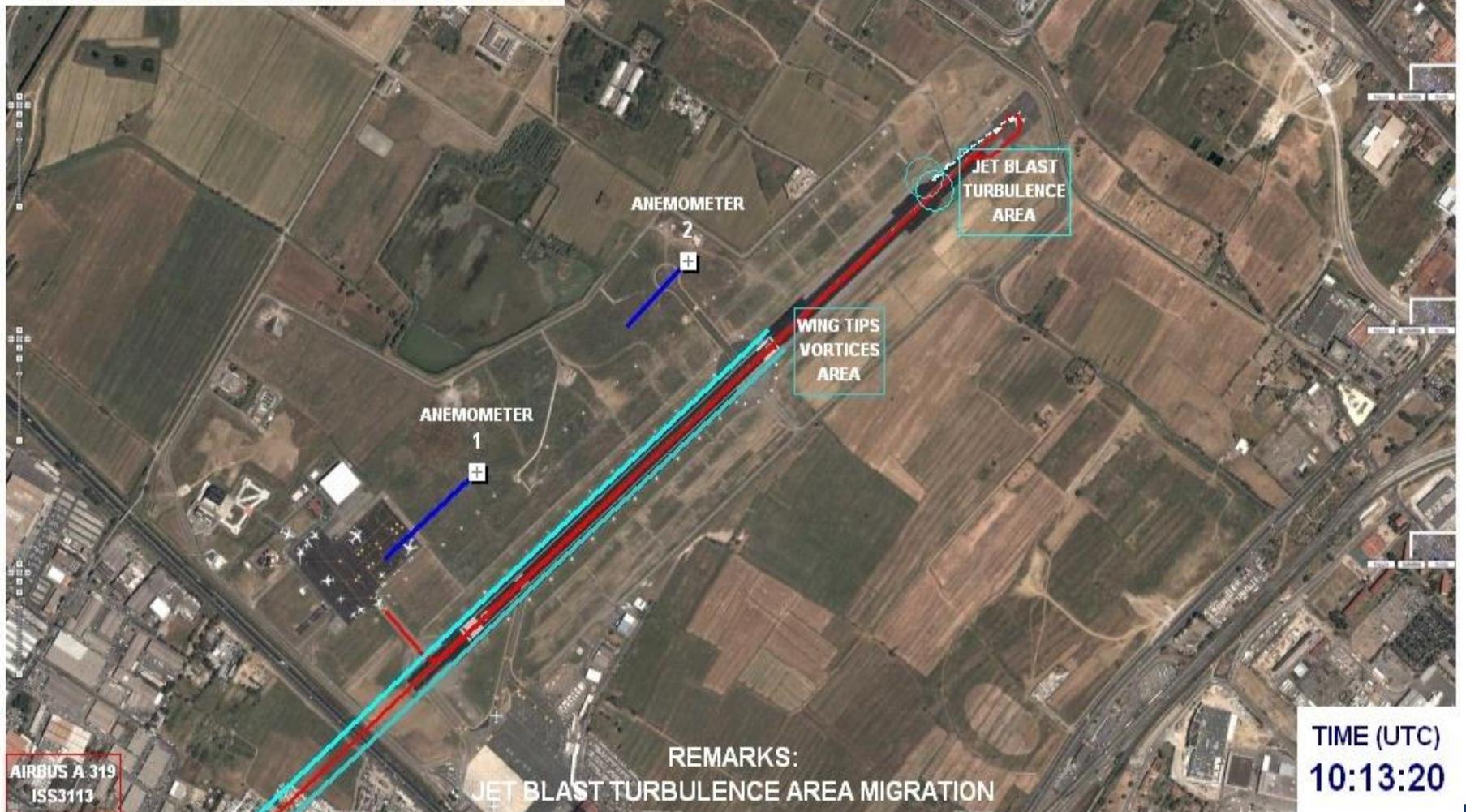
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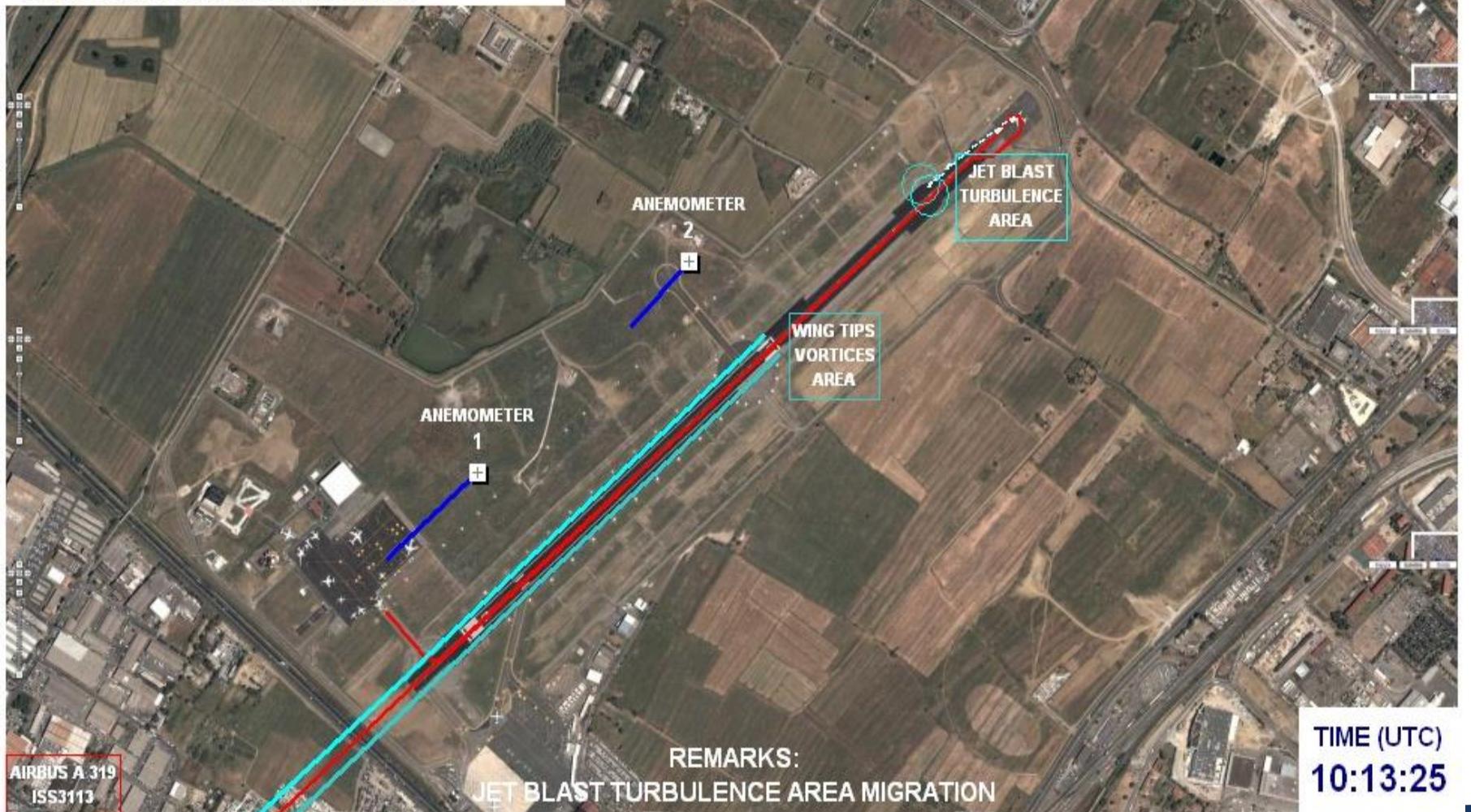
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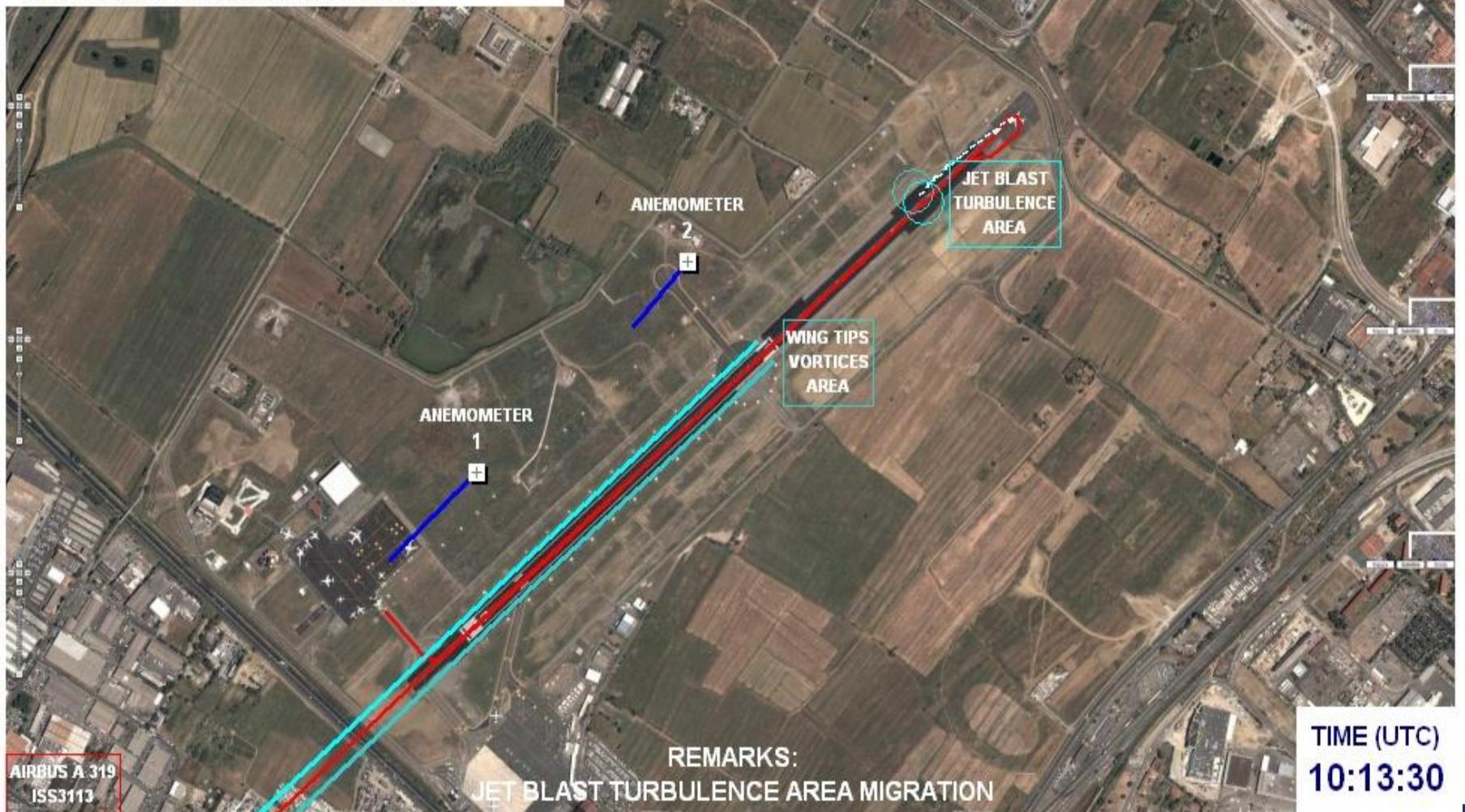
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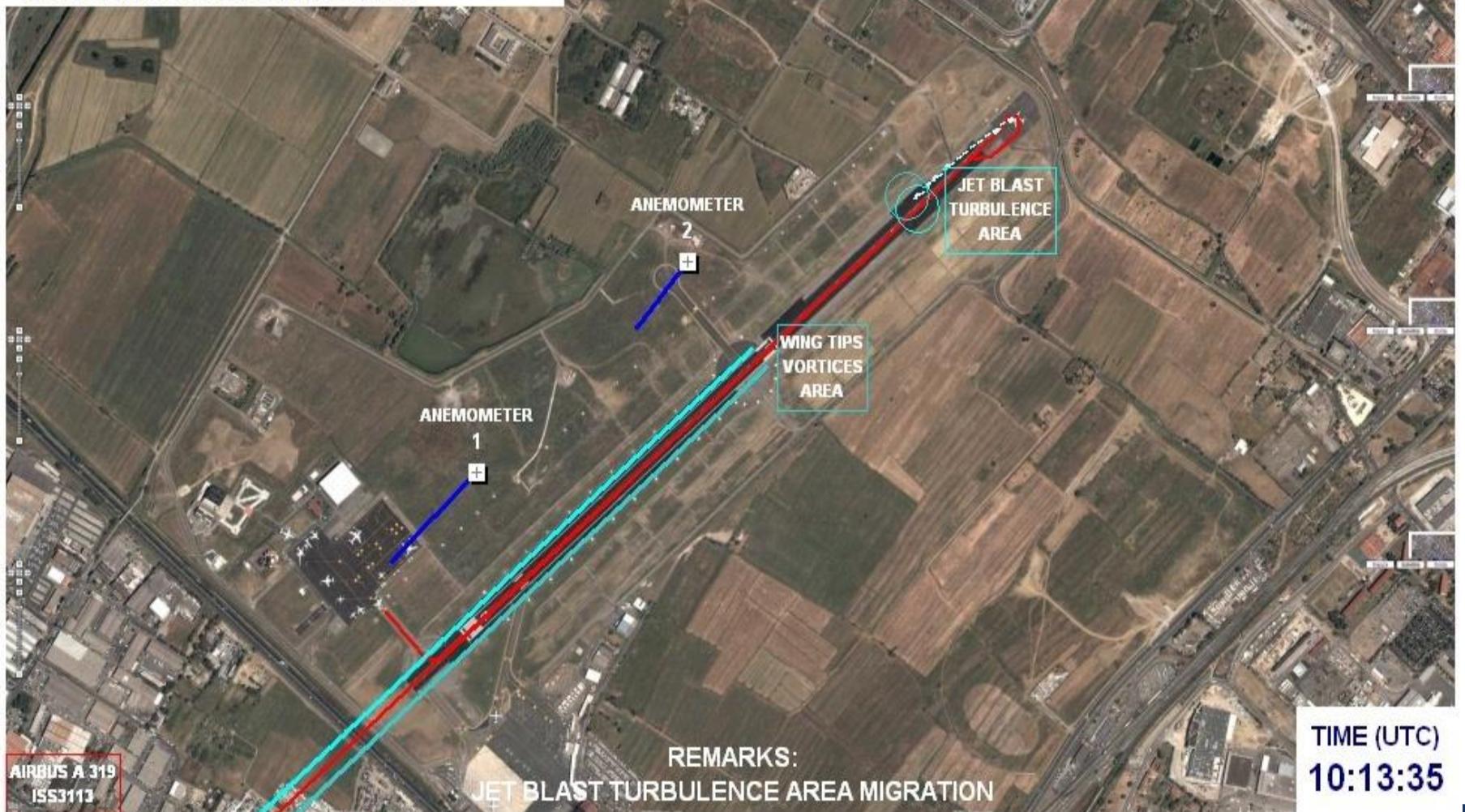
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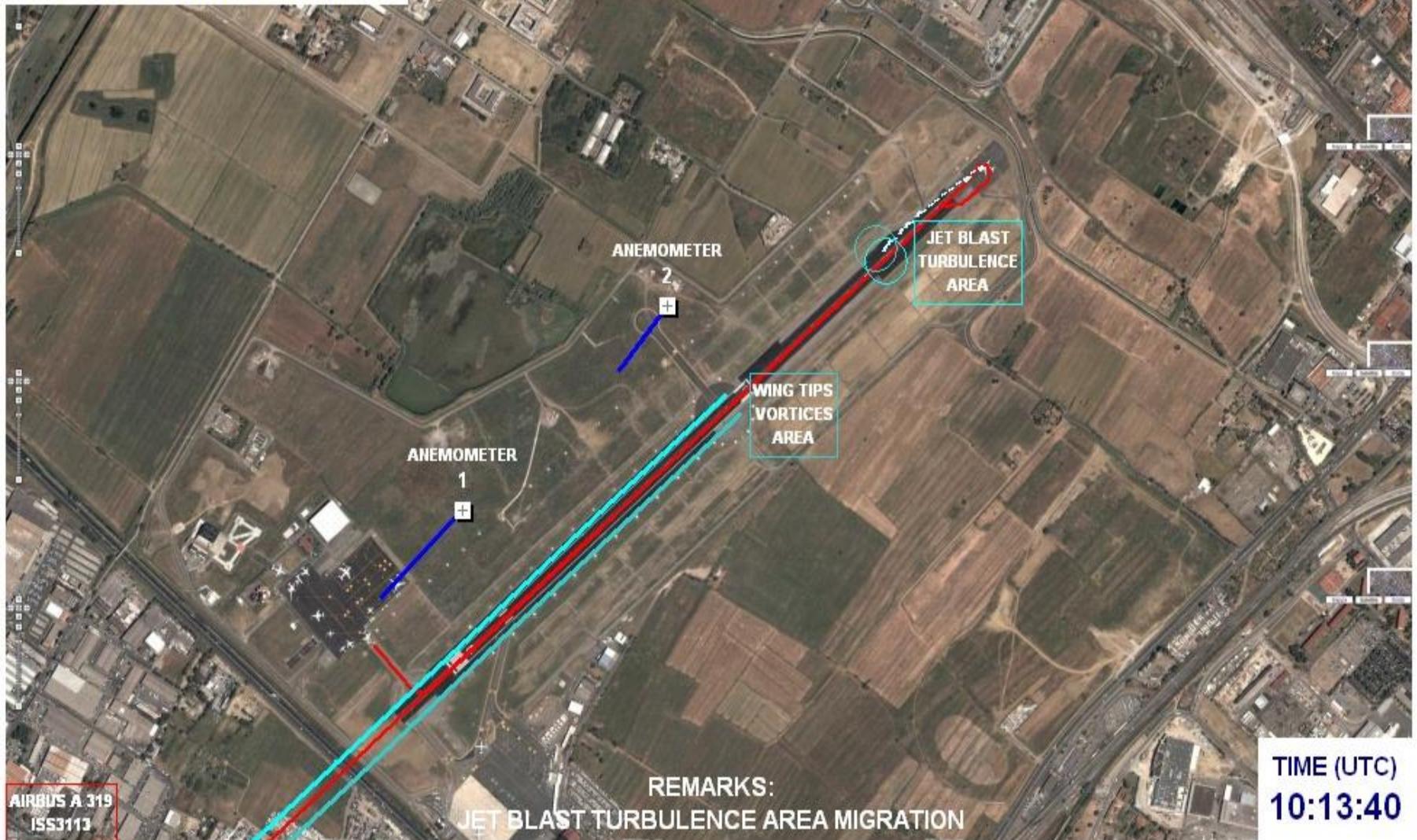
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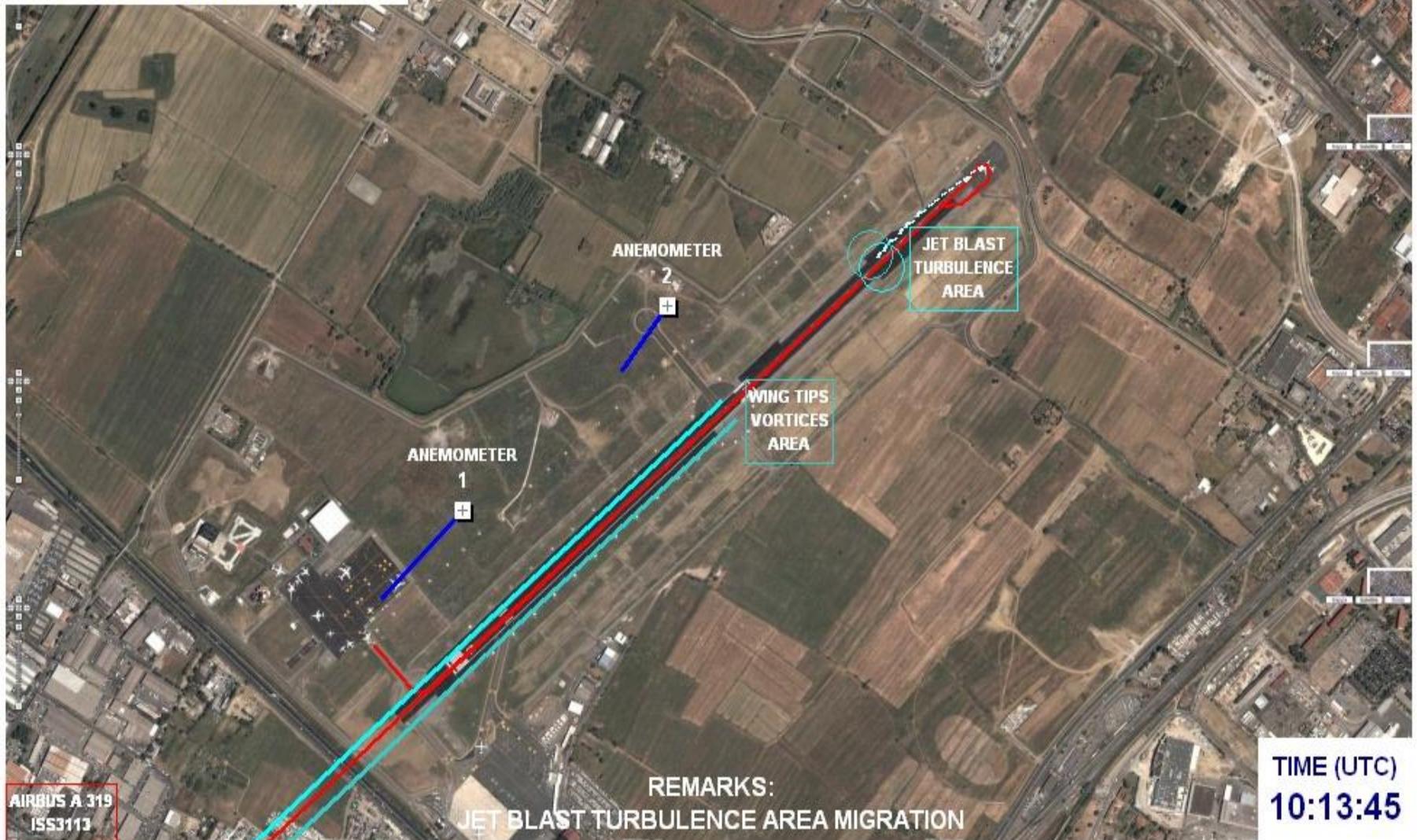
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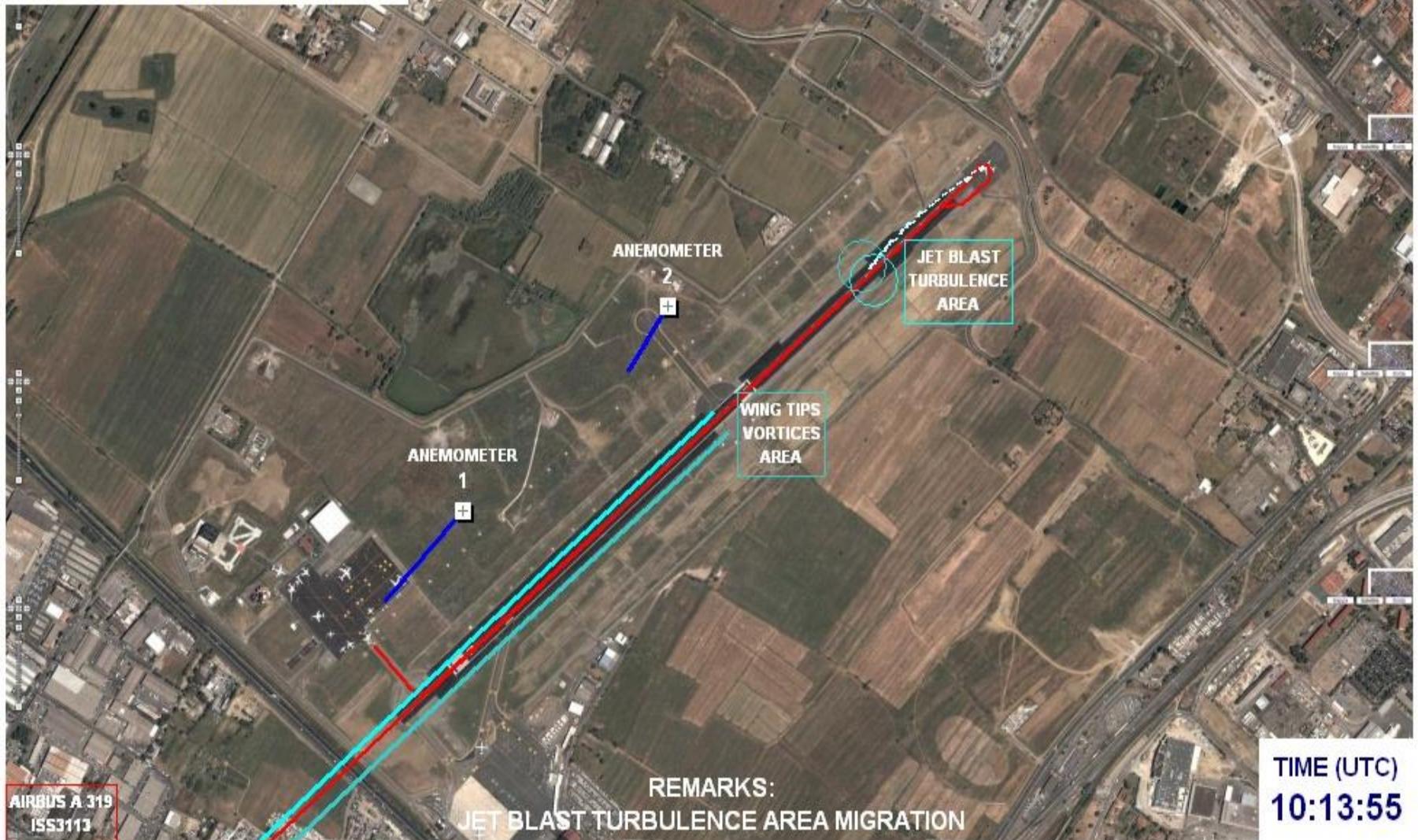
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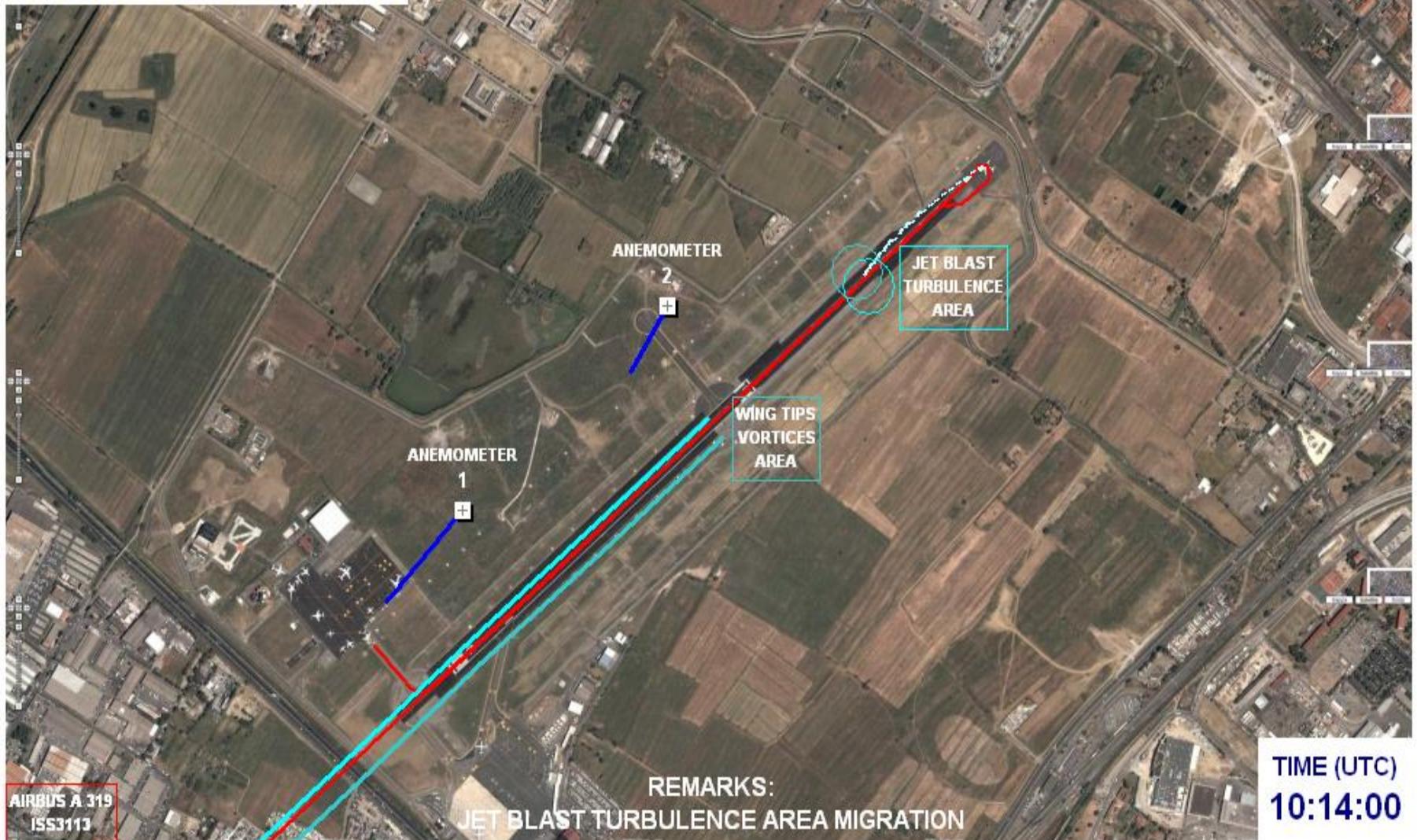
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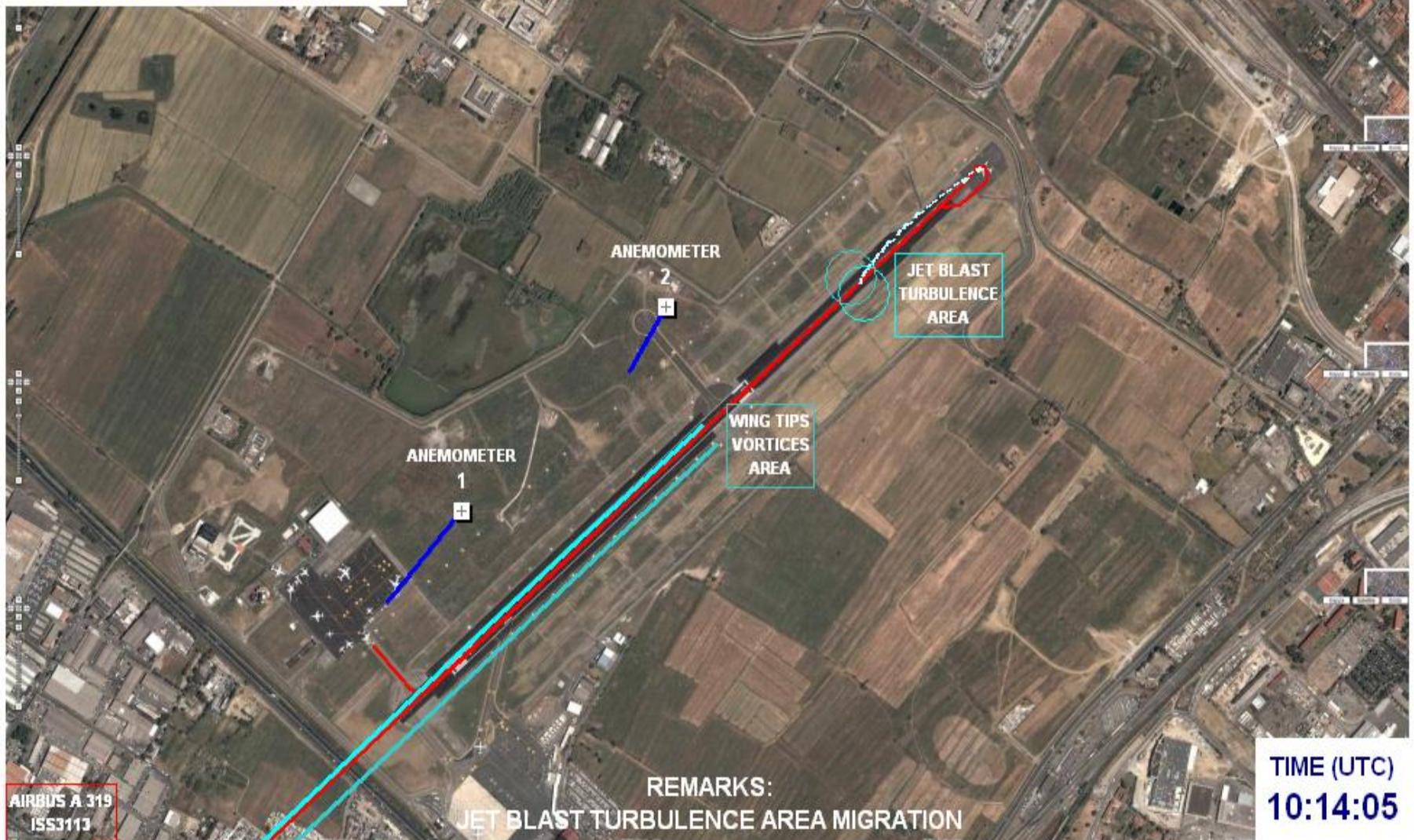
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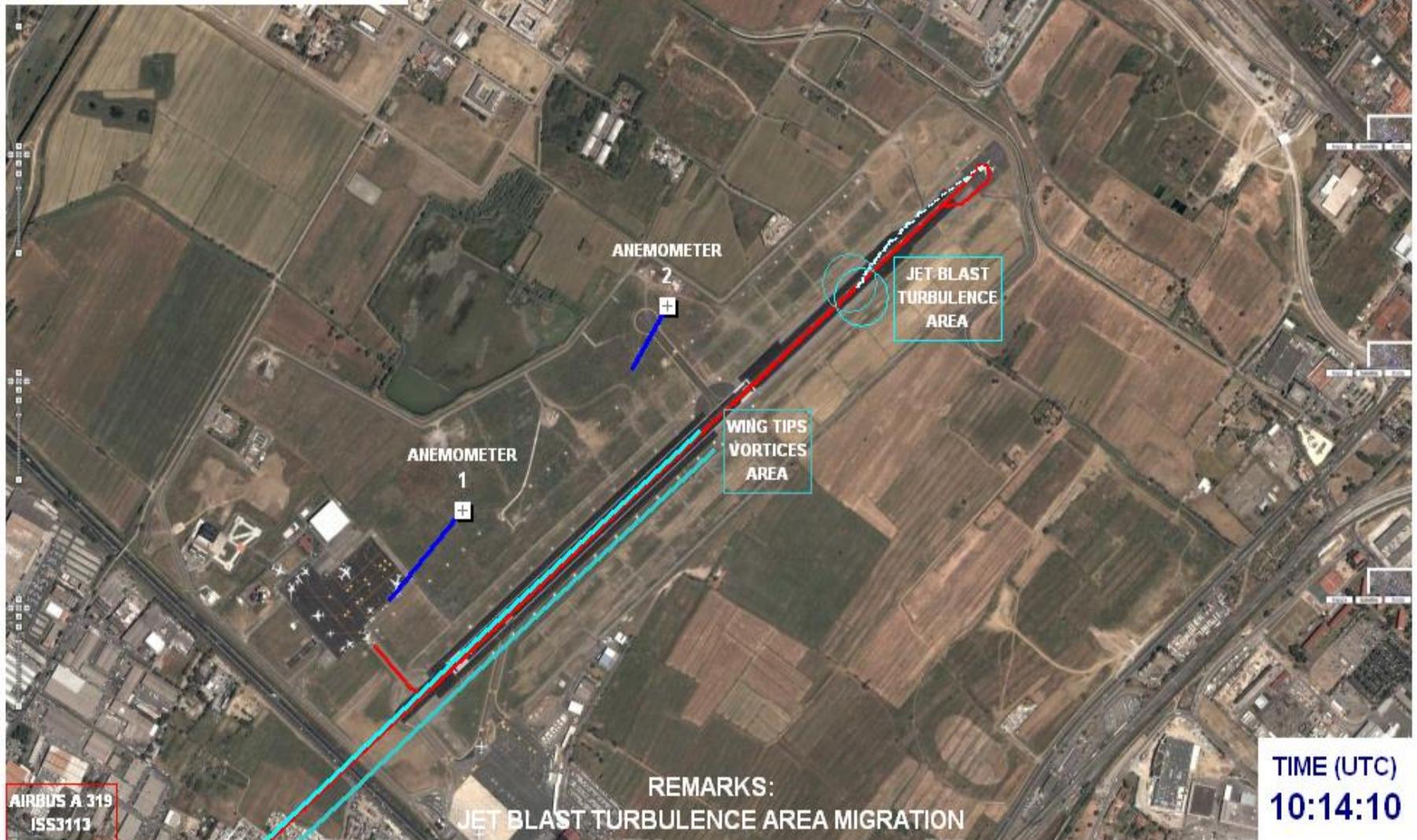
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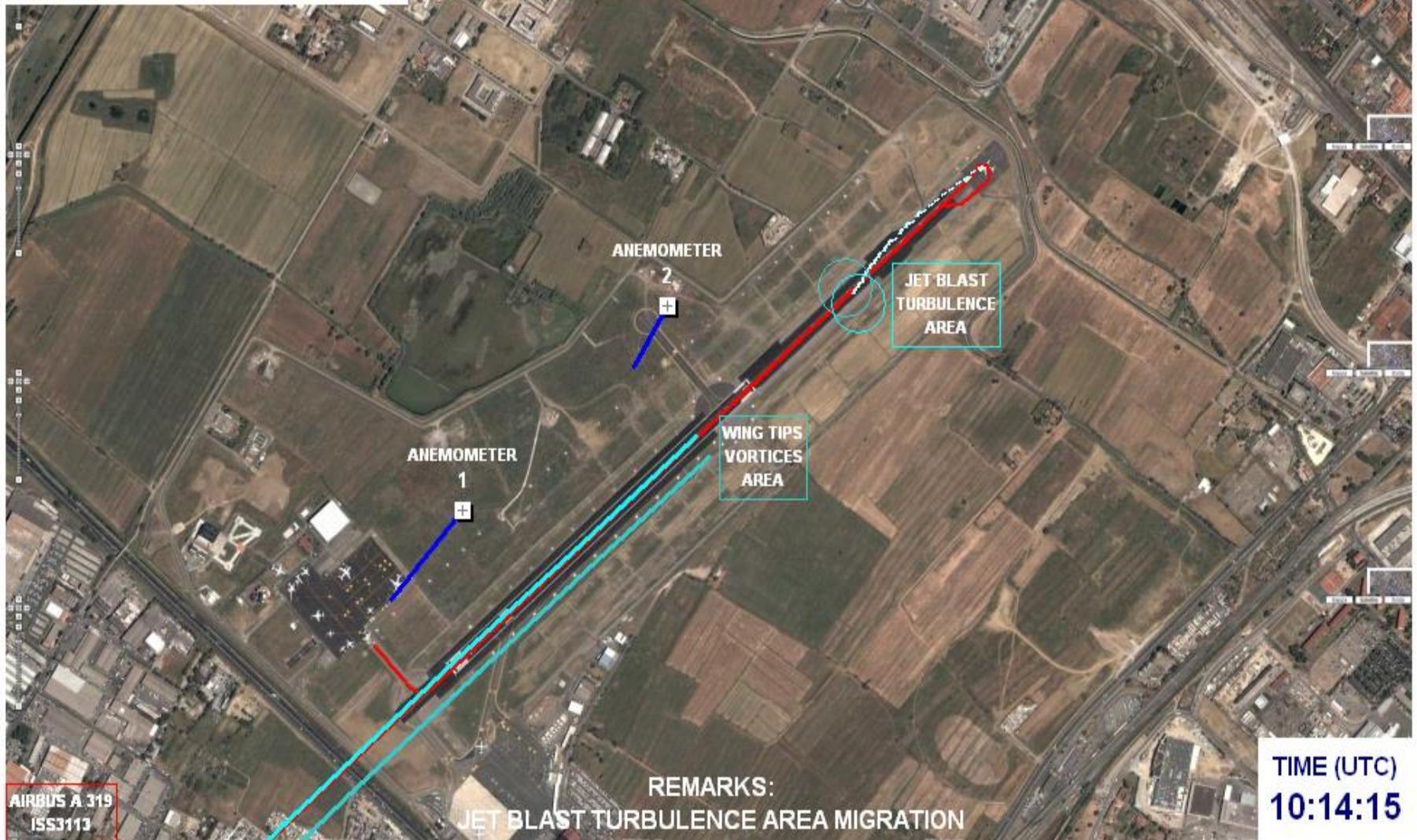
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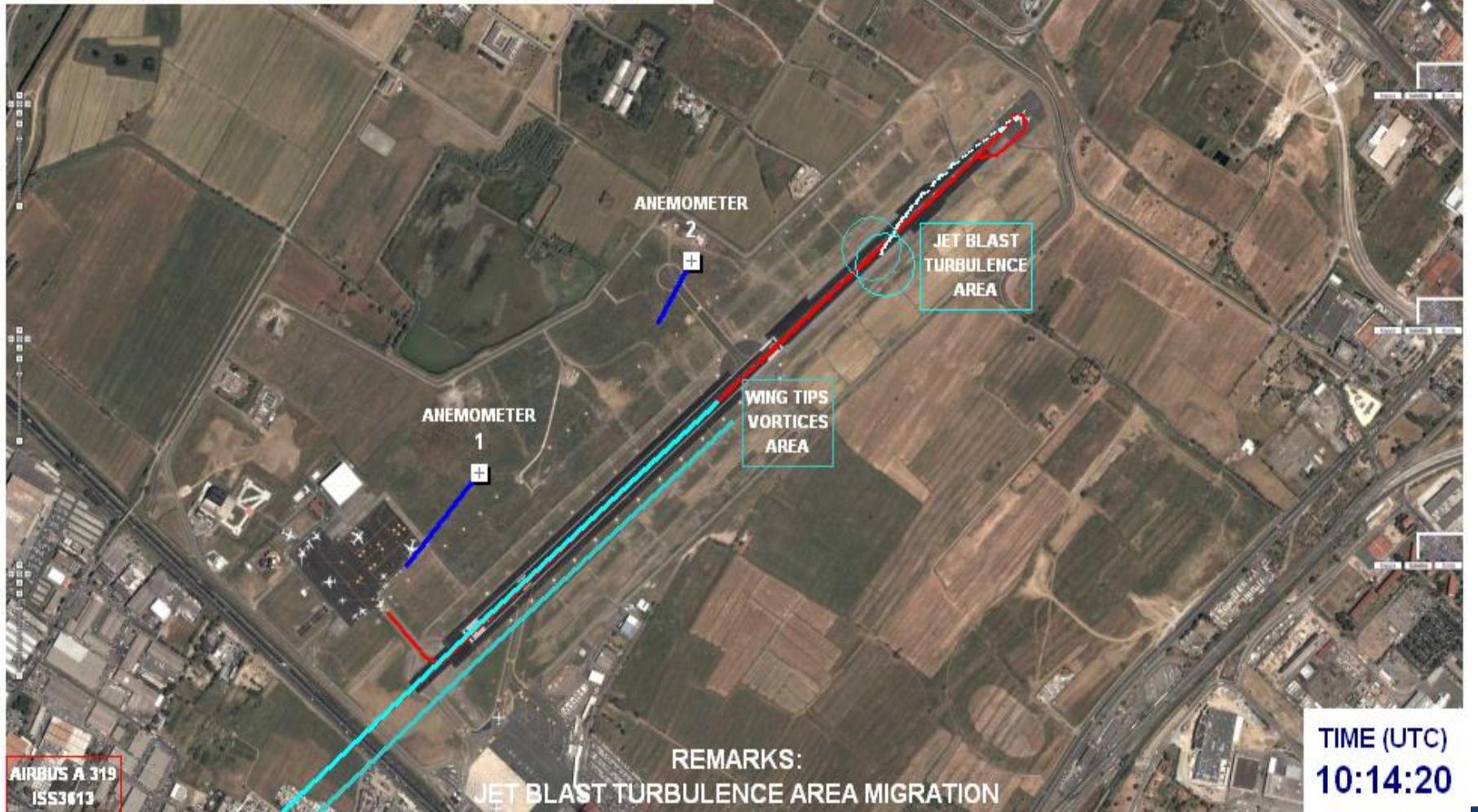
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10:14:24 FROM TWR TO ISS3613 :

- MERIDIANA 3613, IN VOLO AGLI UNO TRE, ULTERIORI PISA 26.07. CIAO.



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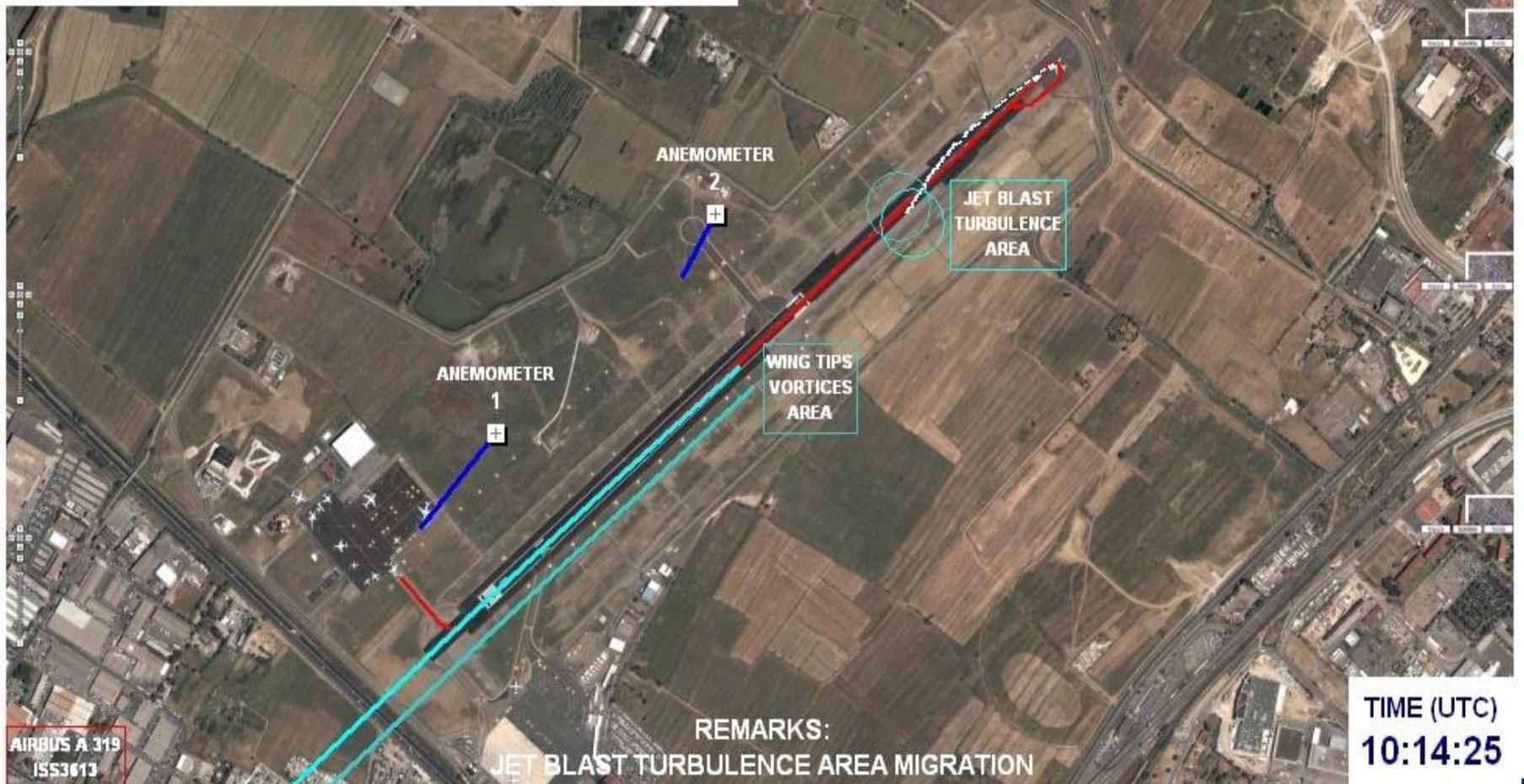
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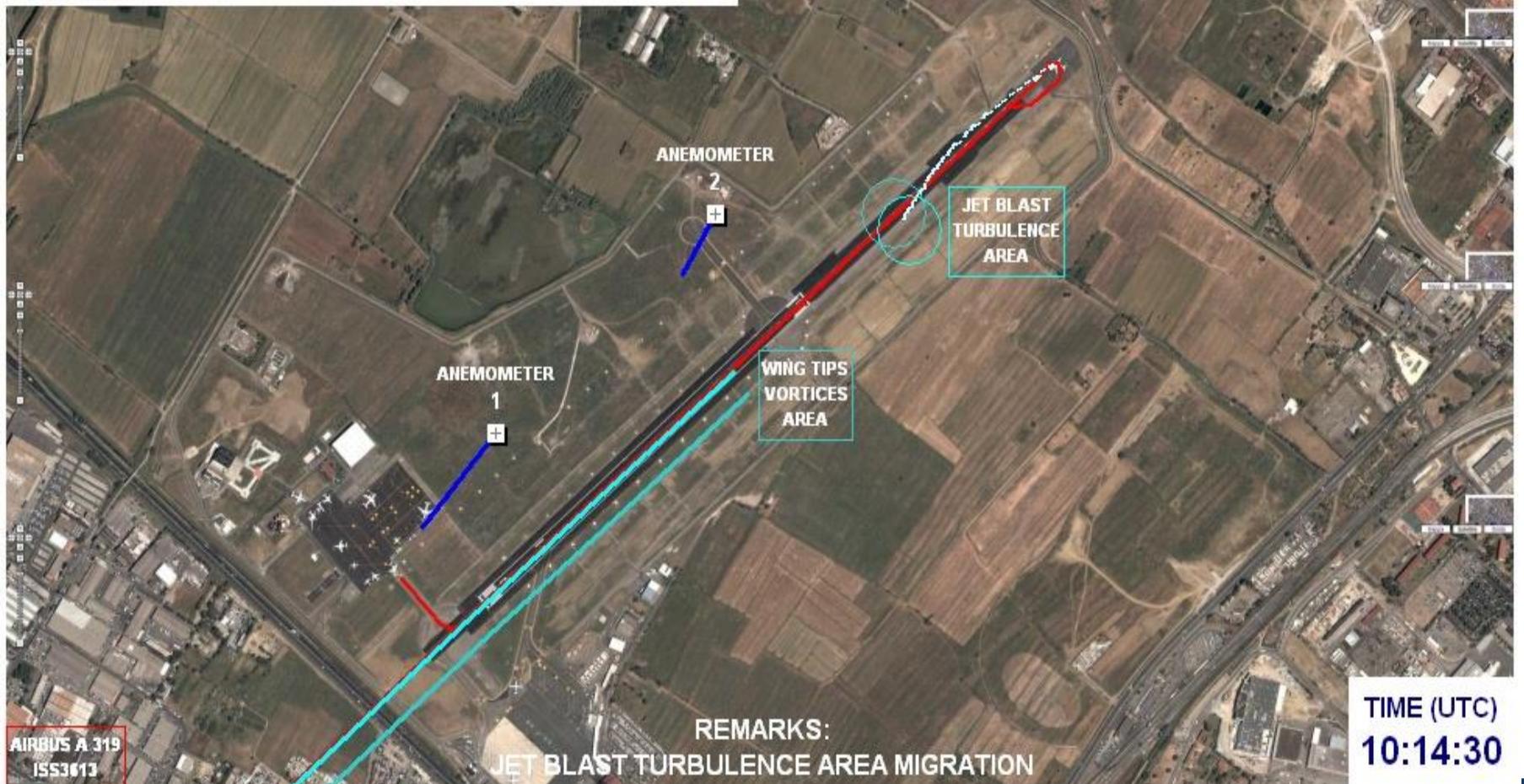
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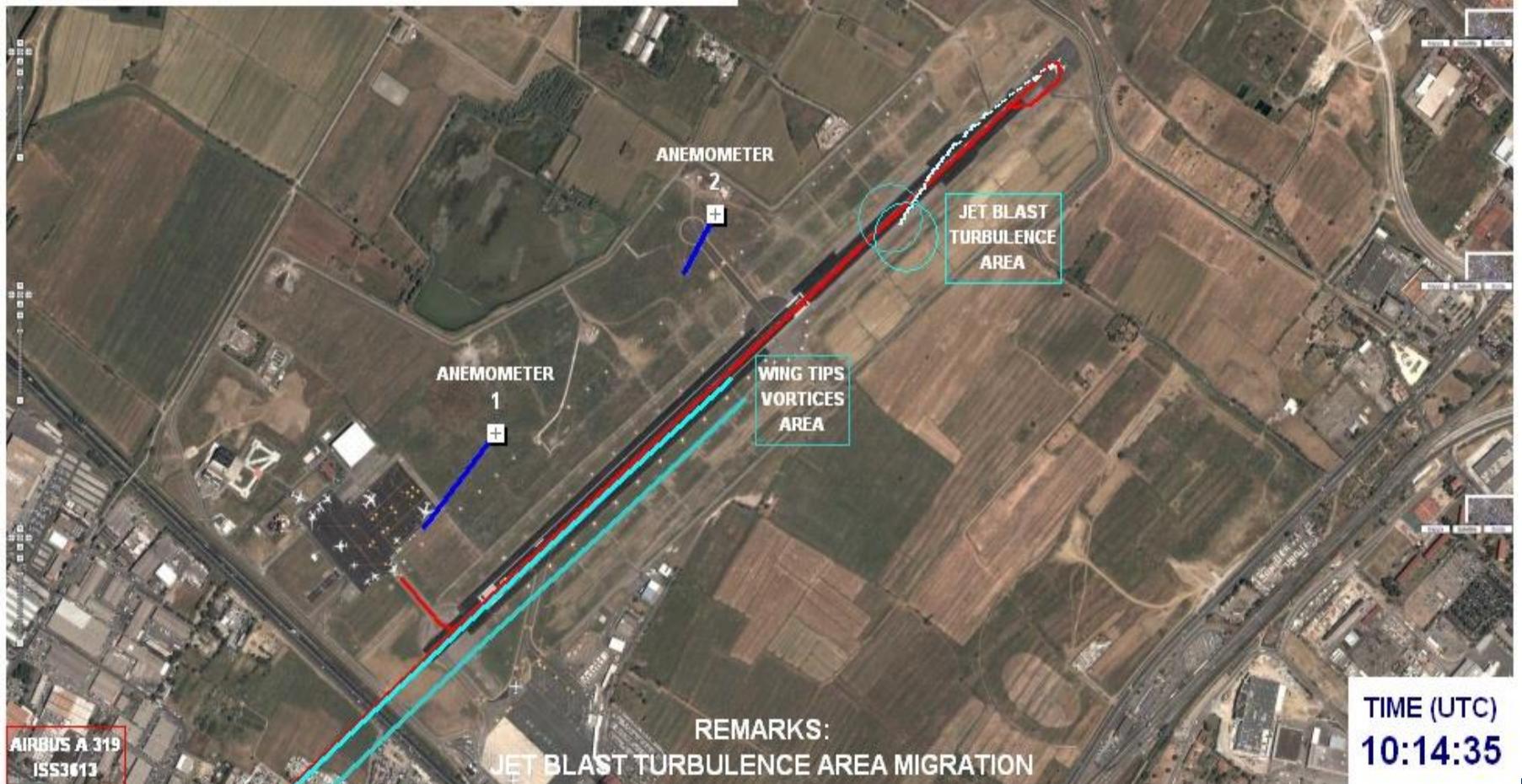
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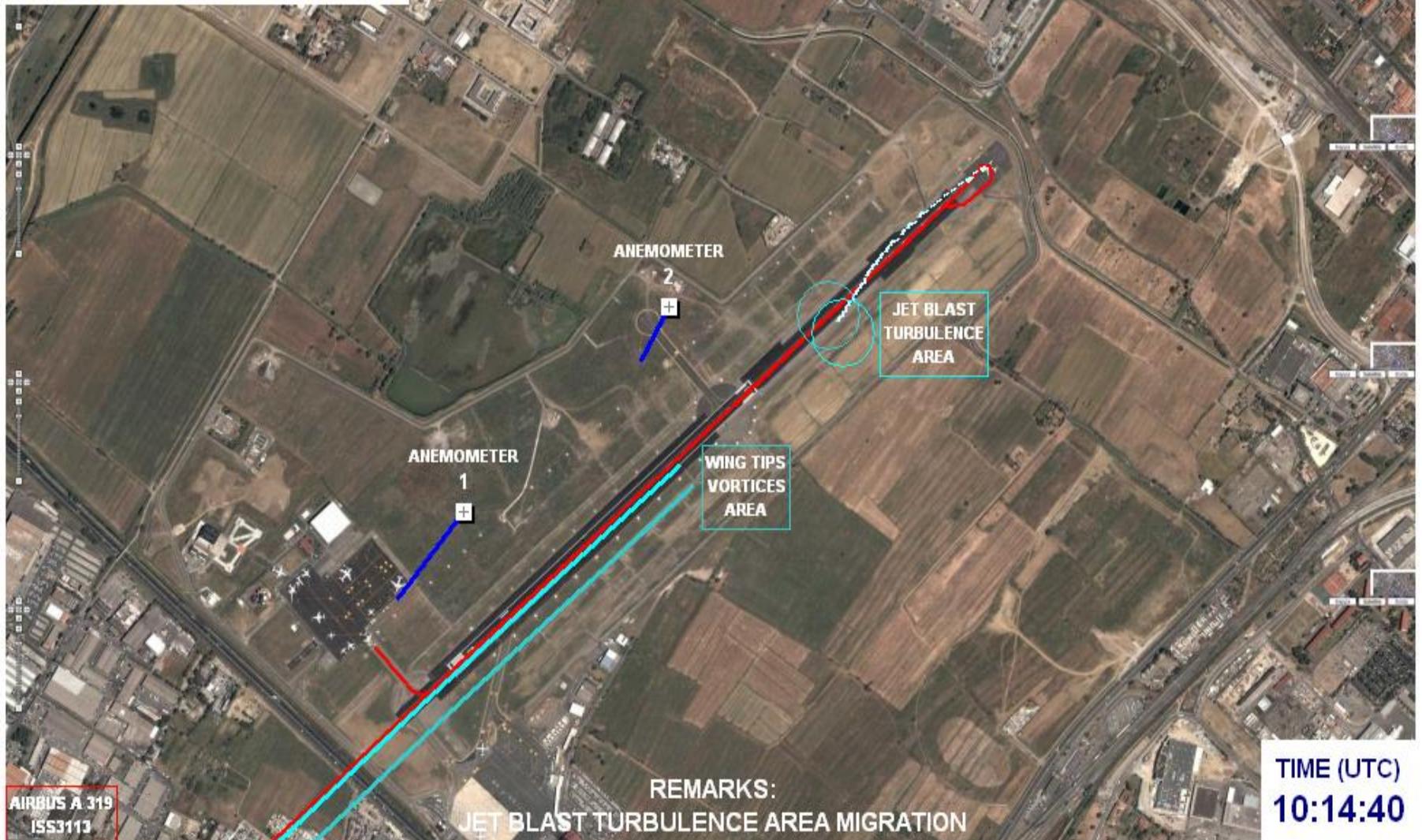
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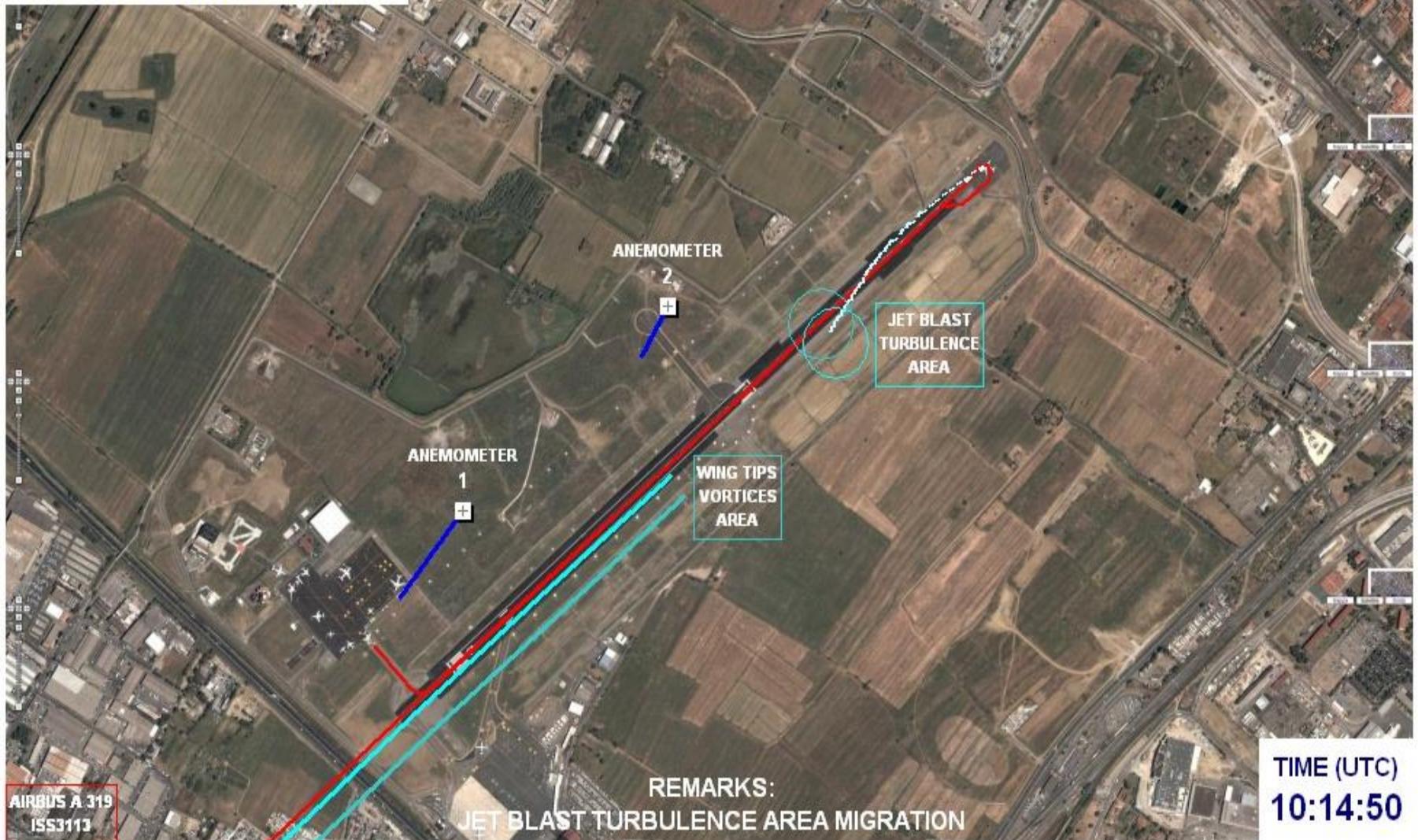
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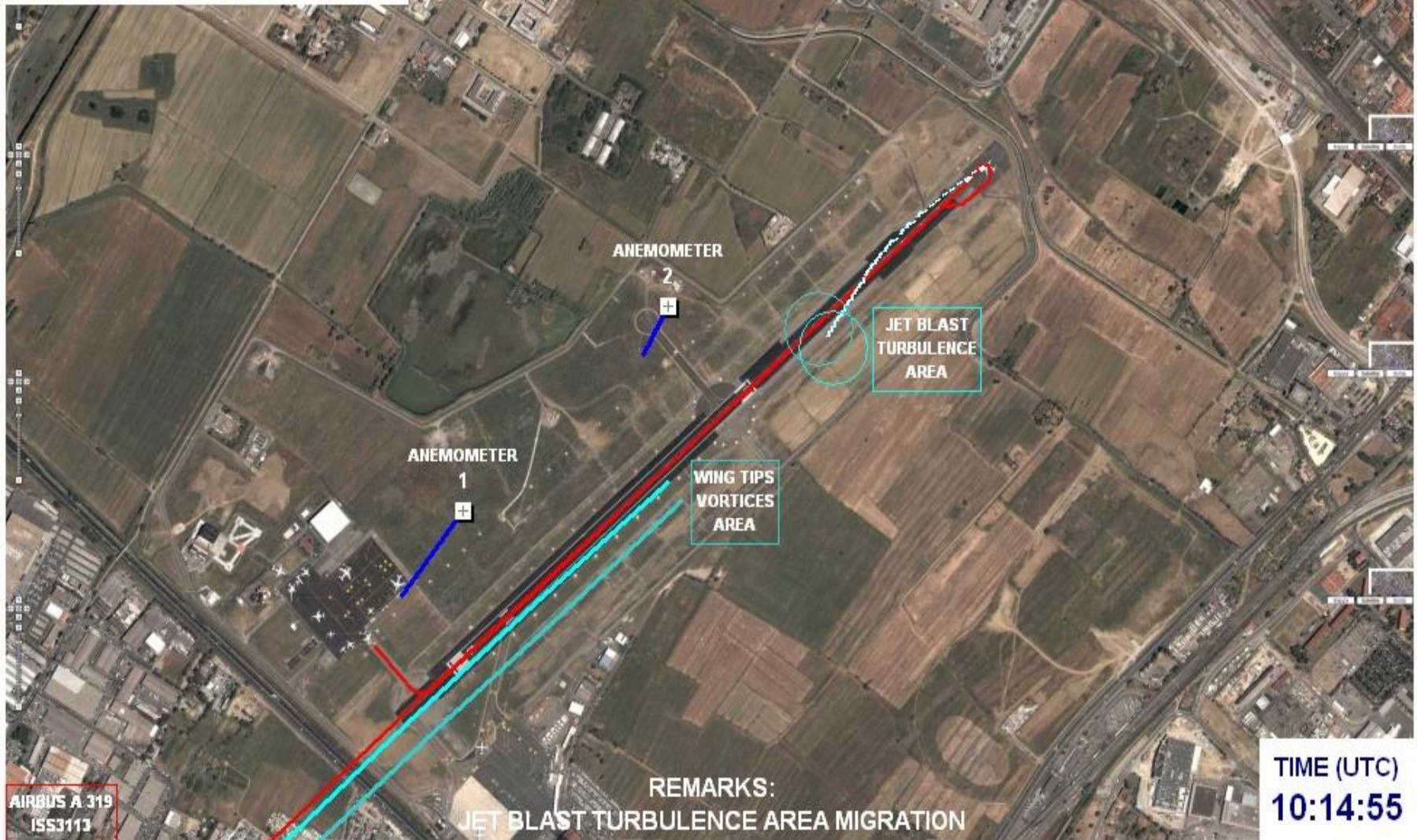
- RICEVUTO, RIPORTATE FINALE DUE TRE.



COMMUNICATIONS

10:13:25 FROM TWR TO HB-OQH :

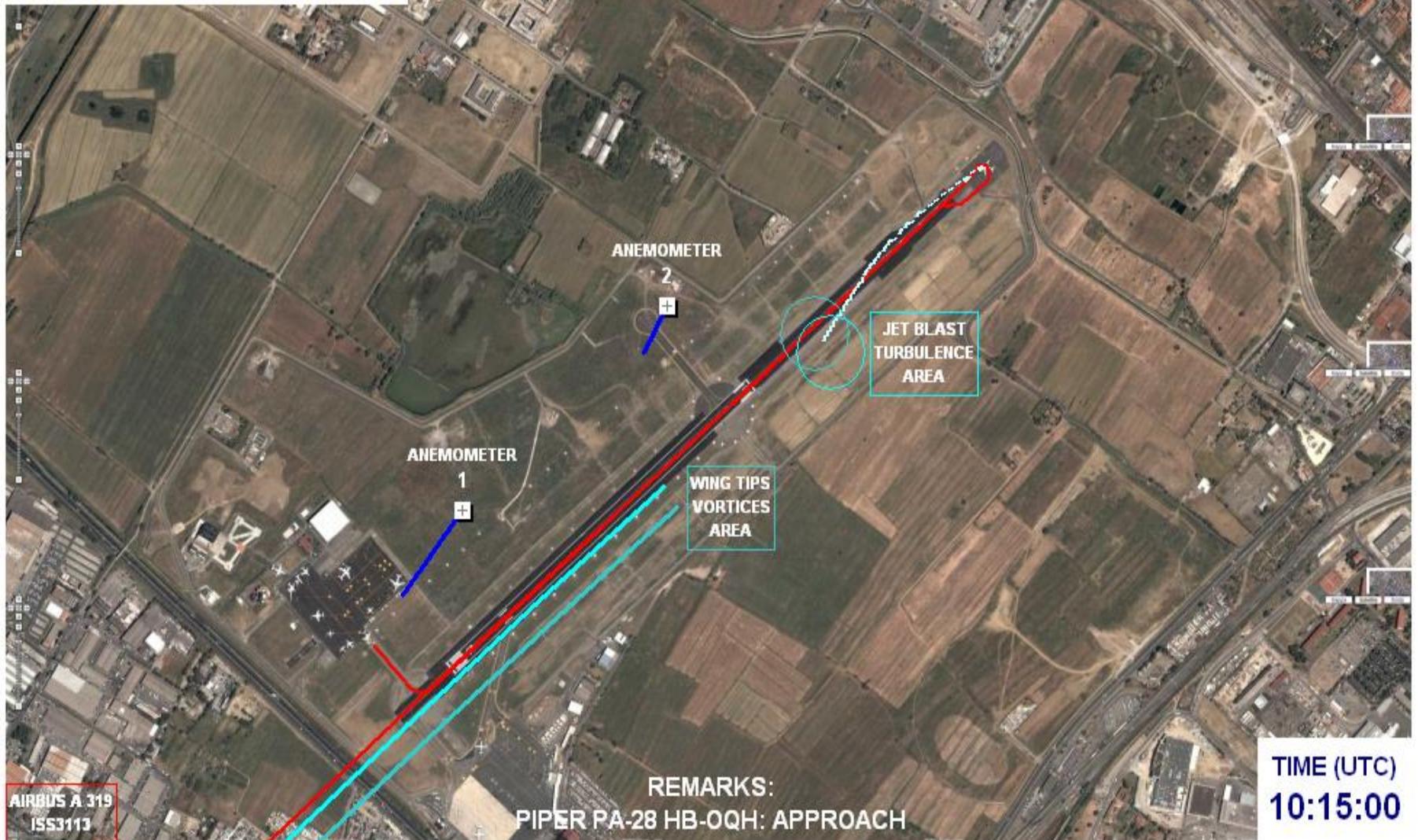
- RICEVUTO, RIPORTATE FINALE DUE TRE.



COMMUNICATIONS

10:13:25 FROM TWR TO HB-OQH :

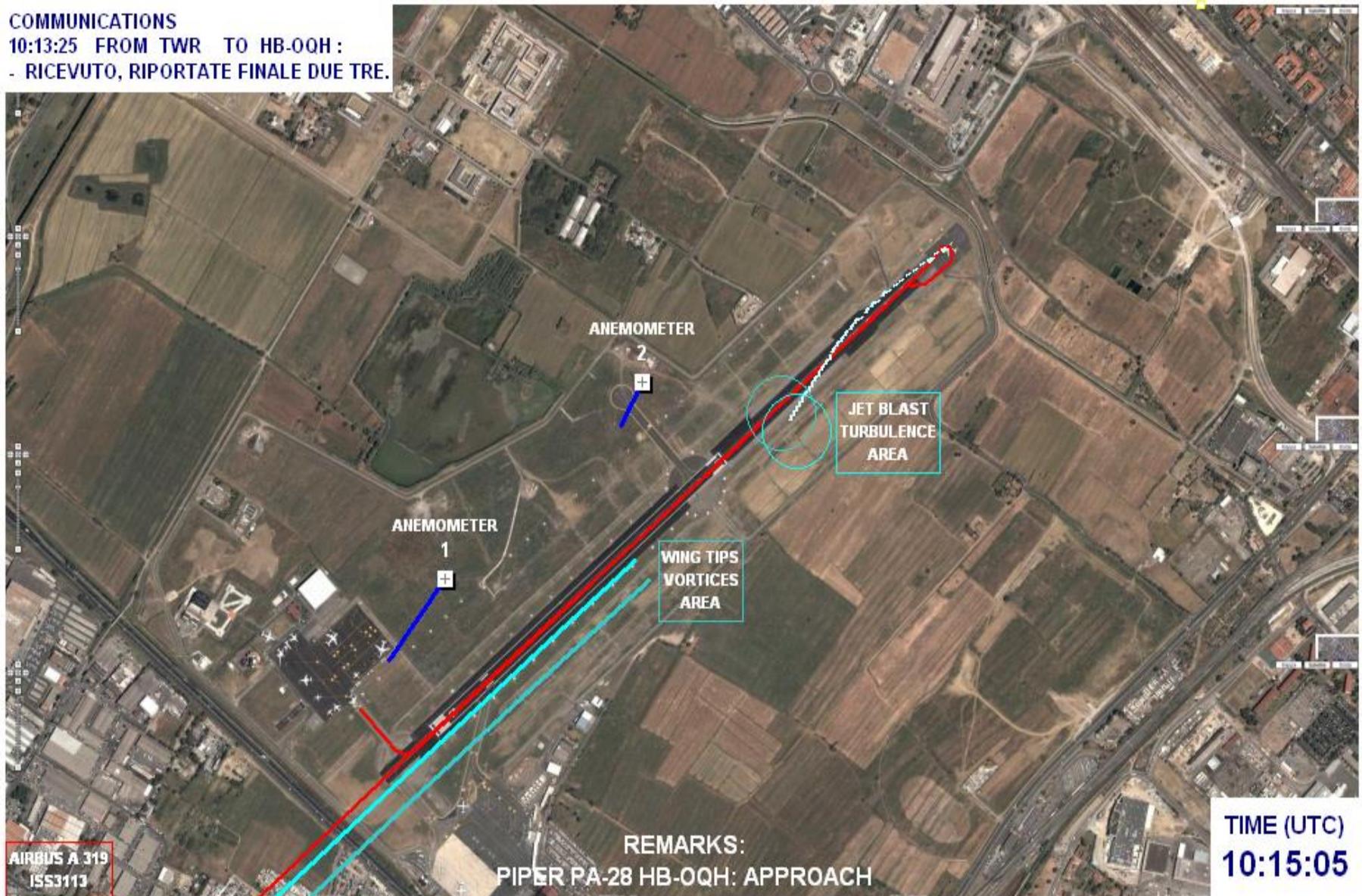
- RICEVUTO, RIPORTATE FINALE DUE TRE.



COMMUNICATIONS

10:13:25 FROM TWR TO HB-OQH :

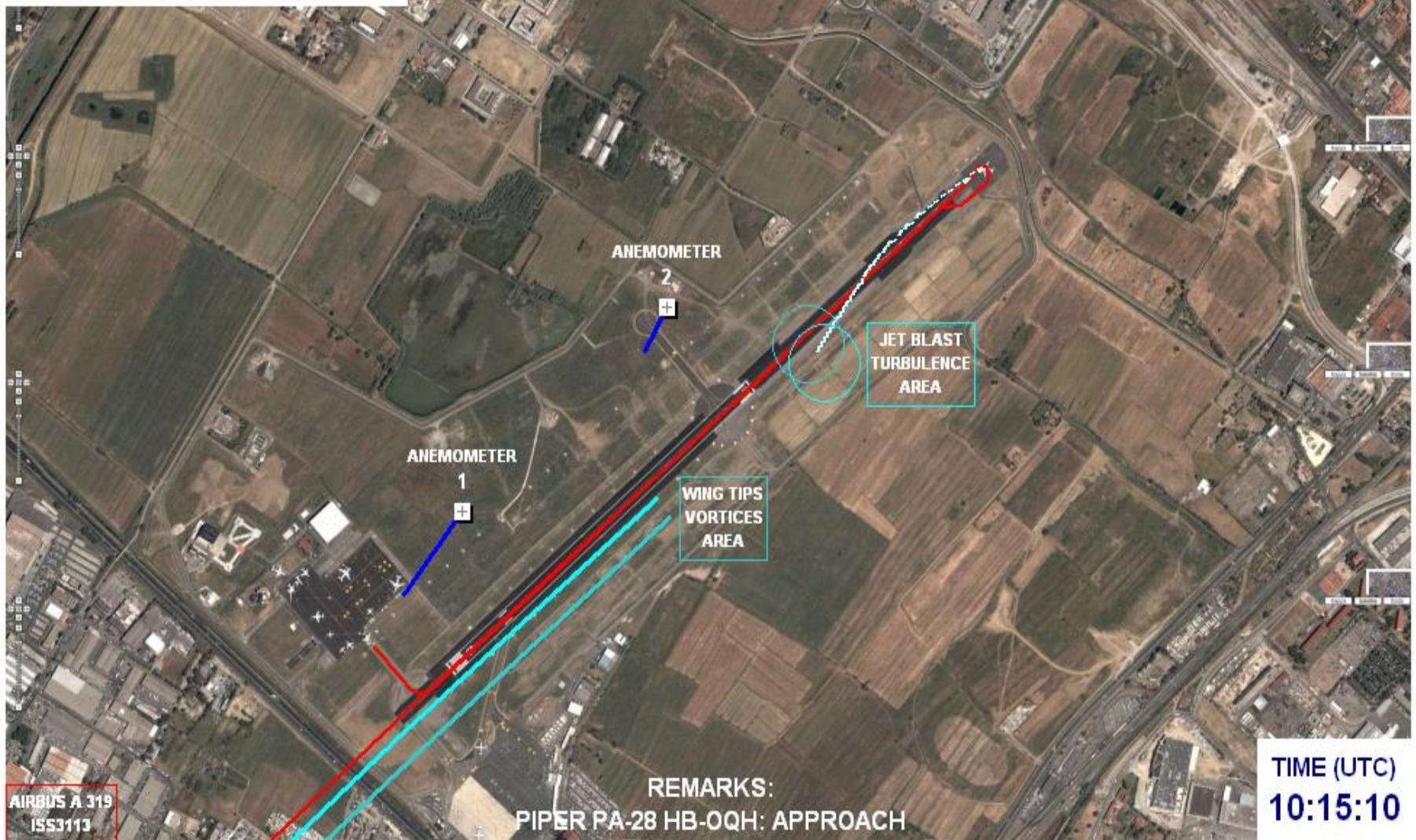
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COMMUNICATIONS

10:13:25 FROM TWR TO HB-OQH :

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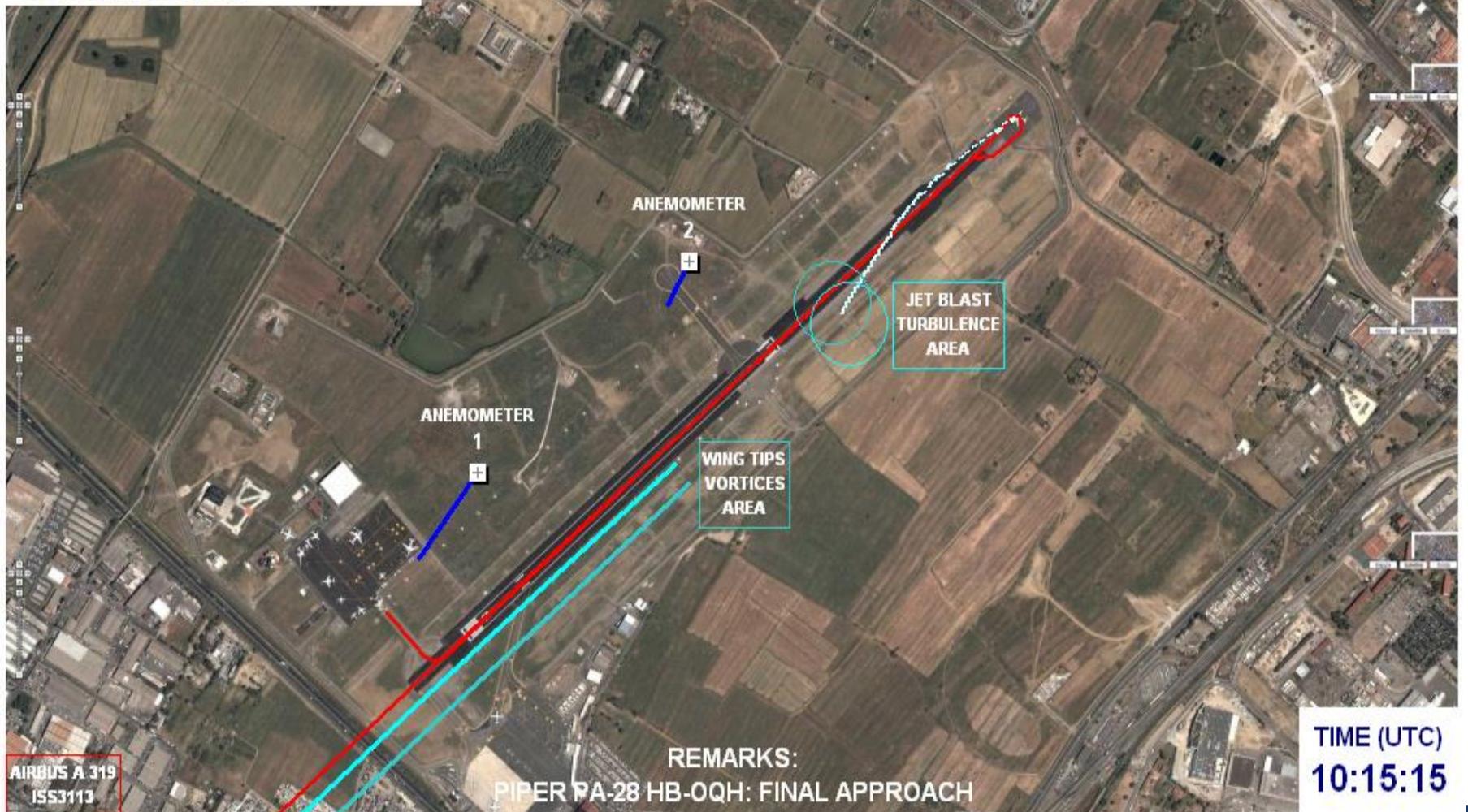
COMMUNICATIONS

10:13:25 FROM TWR TO HB-OQH :

- RICEVUTO, RIPORTATE FINALE DUE TRE.

10:15:18 FROM HB-OQH TO TWR :

- QH IN FINALE DUE TRE



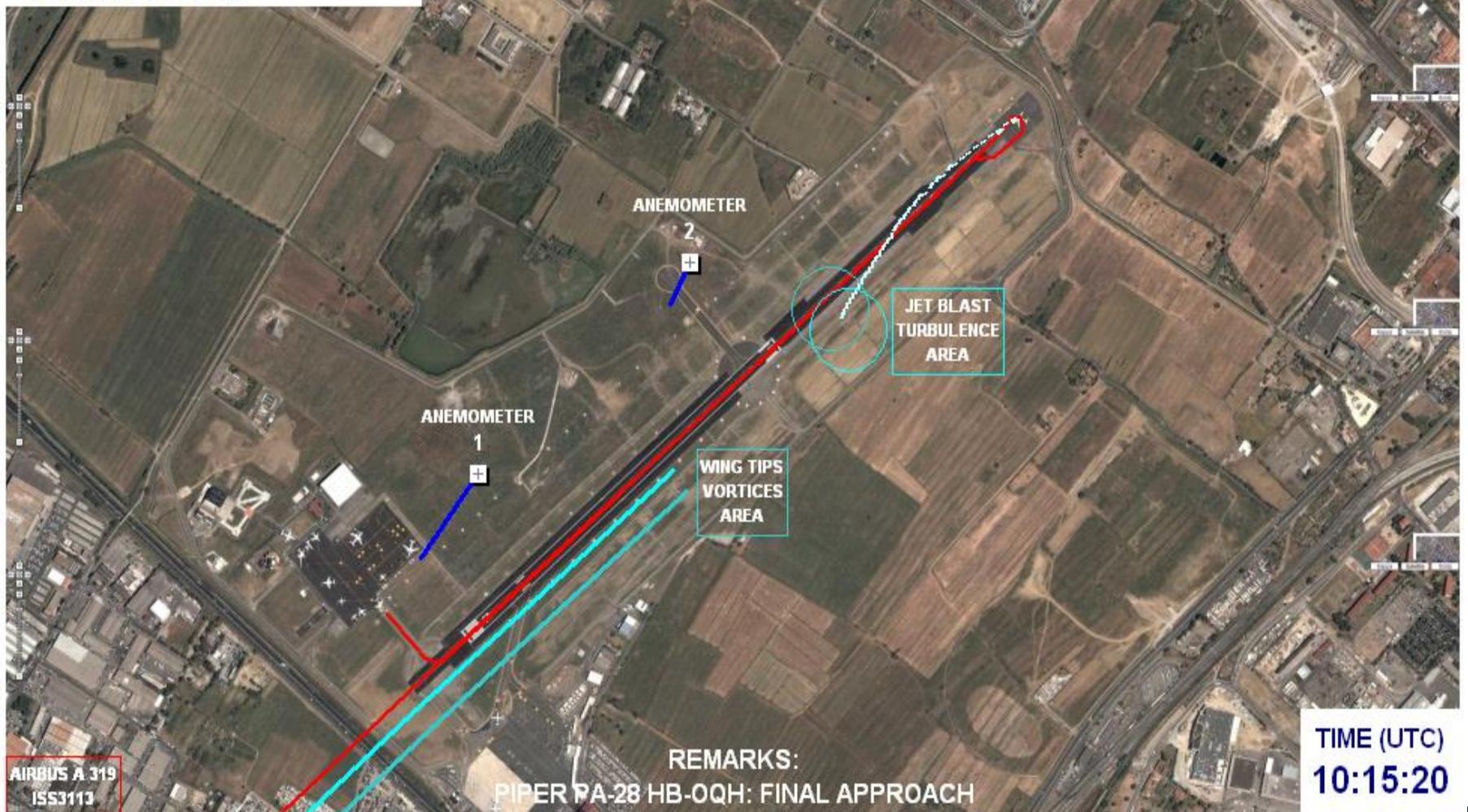
COMMUNICATIONS

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- RICEVUTO, RIPORTATE FINALE DUE TRE.

10:15:18 FROM HB-OQH TO TWR :

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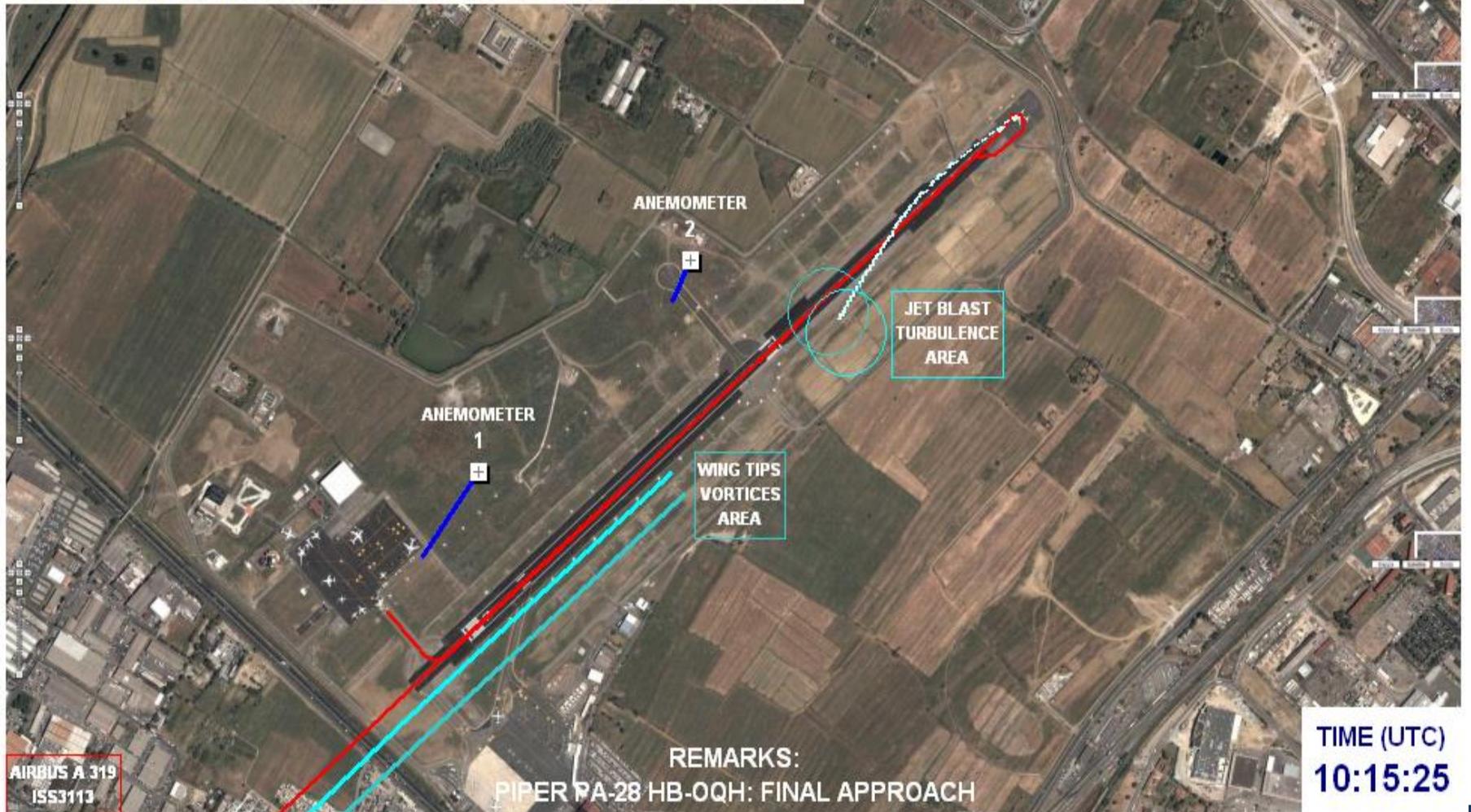
COMMUNICATIONS

10:15:18 FROM HB-OQH TO TWR :

- QH IN FINALE DUE TRE

10:15:21 FROM TWR TO HB-OQH :

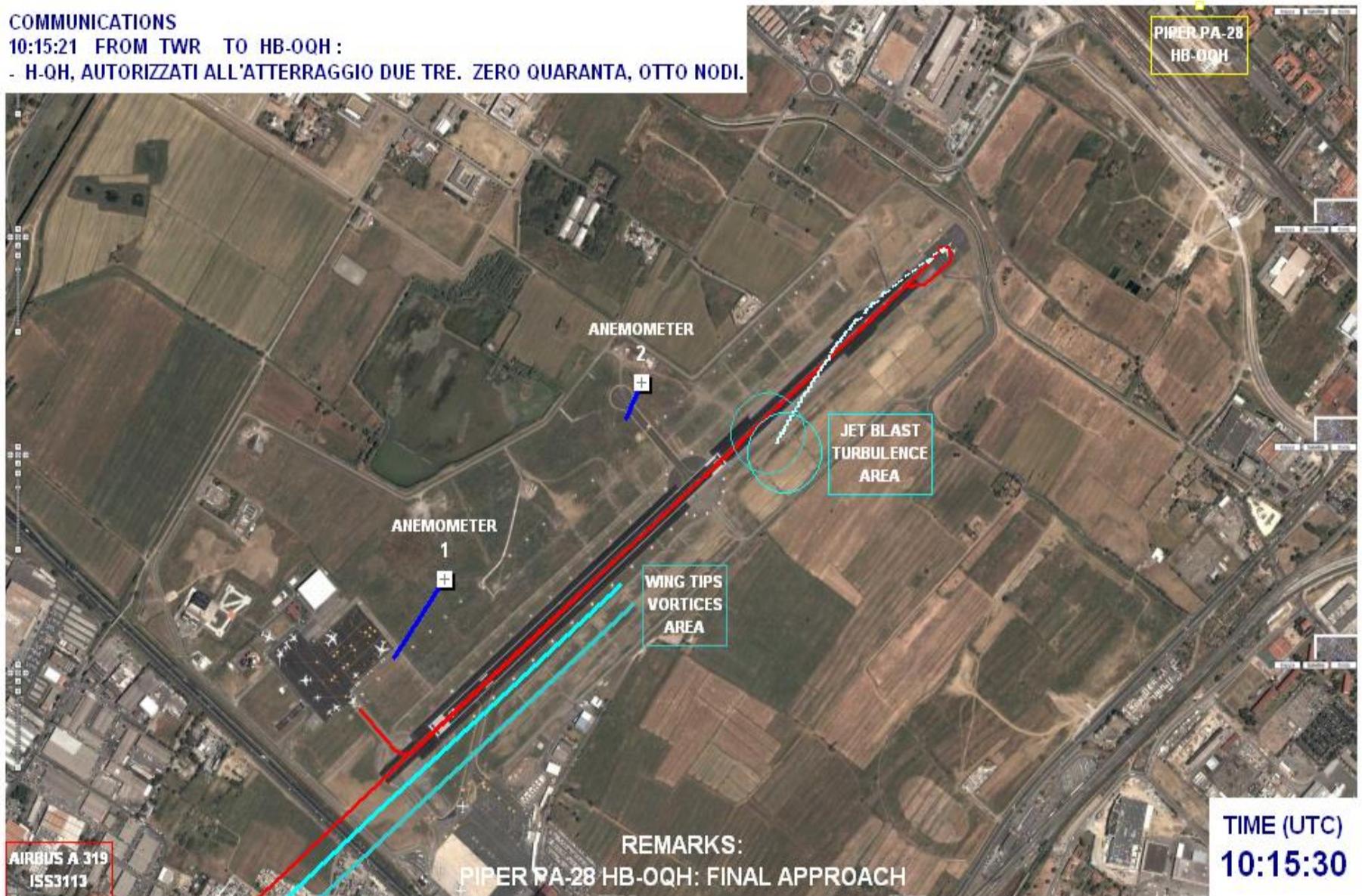
- H-QH, AUTORIZZATI ALL'ATTERRAGGIO DUE TRE. ZERO QUARANTA, OTTO NODI.



COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH :

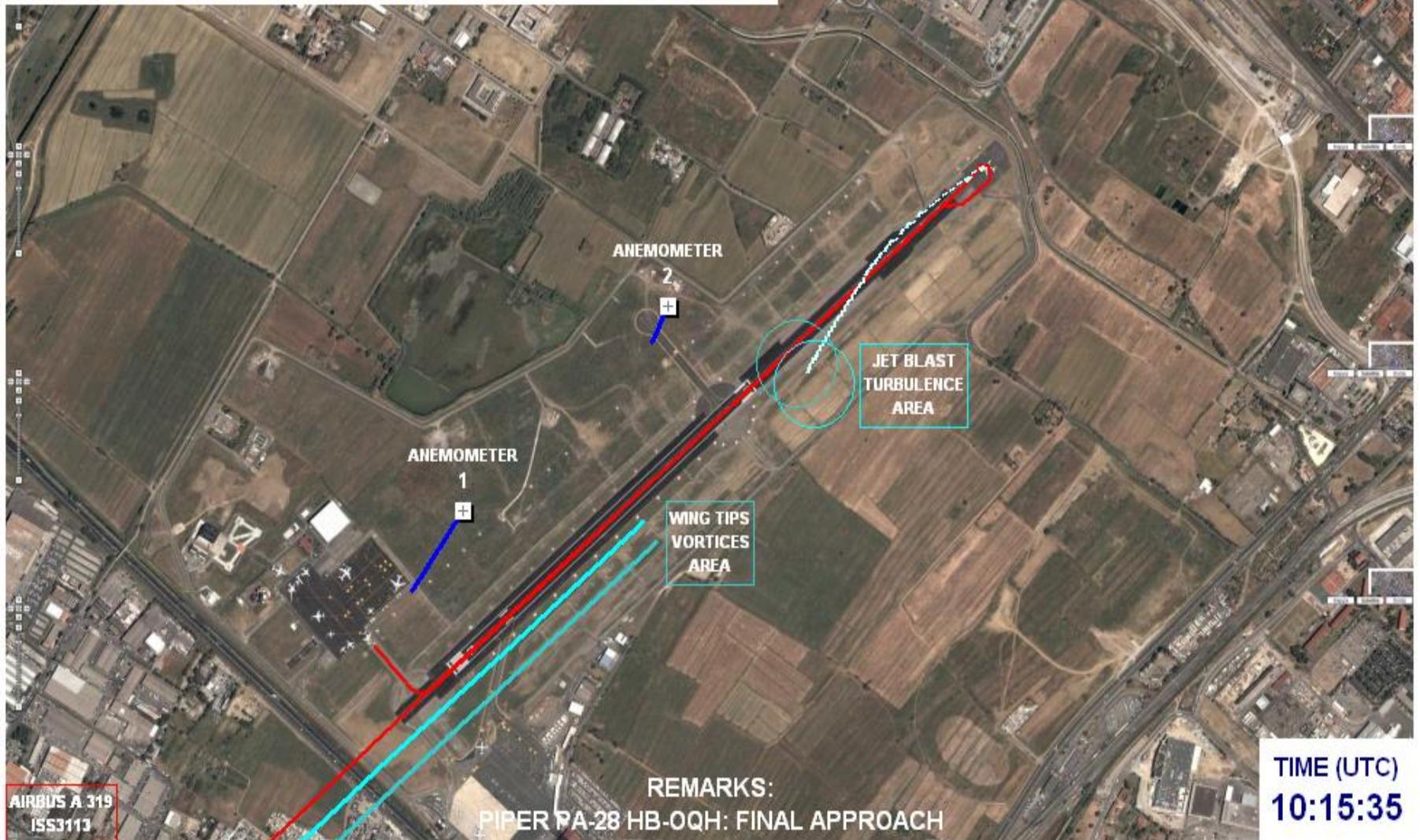
- H-OH, AUTORIZZATI ALL'ATTERRAGGIO DUE TRE. ZERO QUARANTA, OTTO NODI.



COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH :

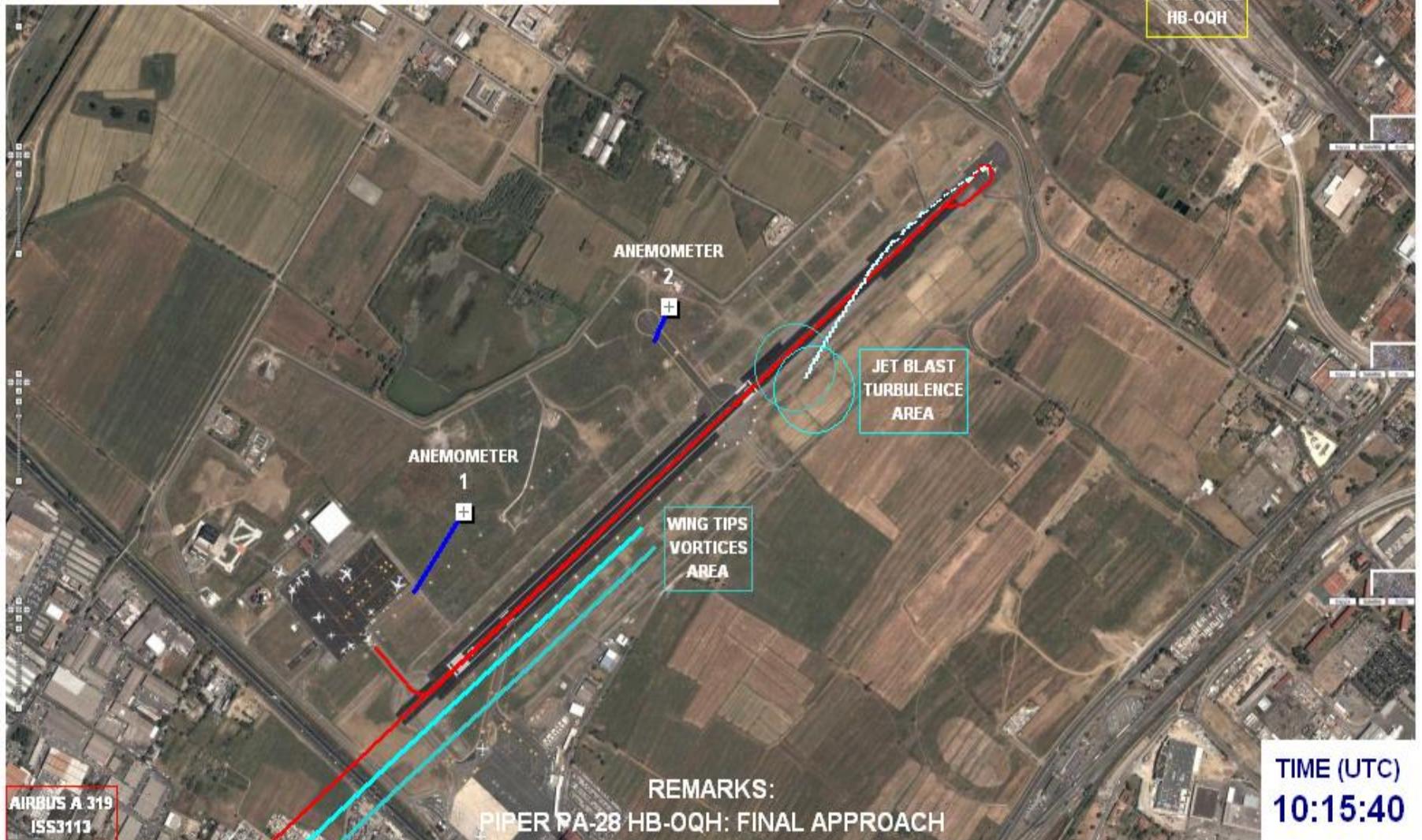
- H-QH, AUTORIZZATI ALL'ATTERRAGGIO DUE TRE. ZERO QUARANTA, OTTO NODI.



COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH:

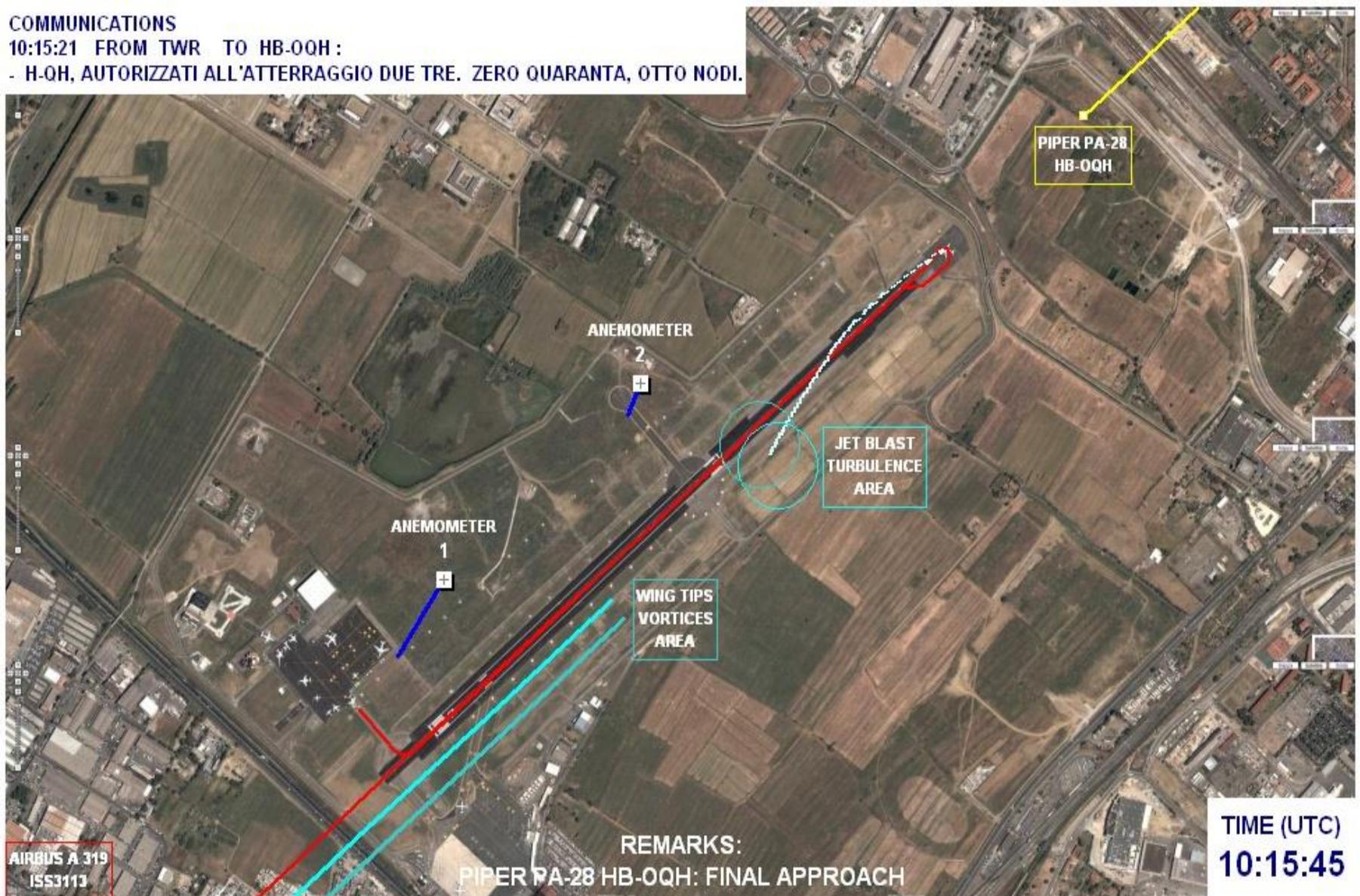
- H-QH, AUTORIZZATI ALL'ATTERRAGGIO DUE TRE. ZERO QUARANTA, OTTO NODI.



COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH :

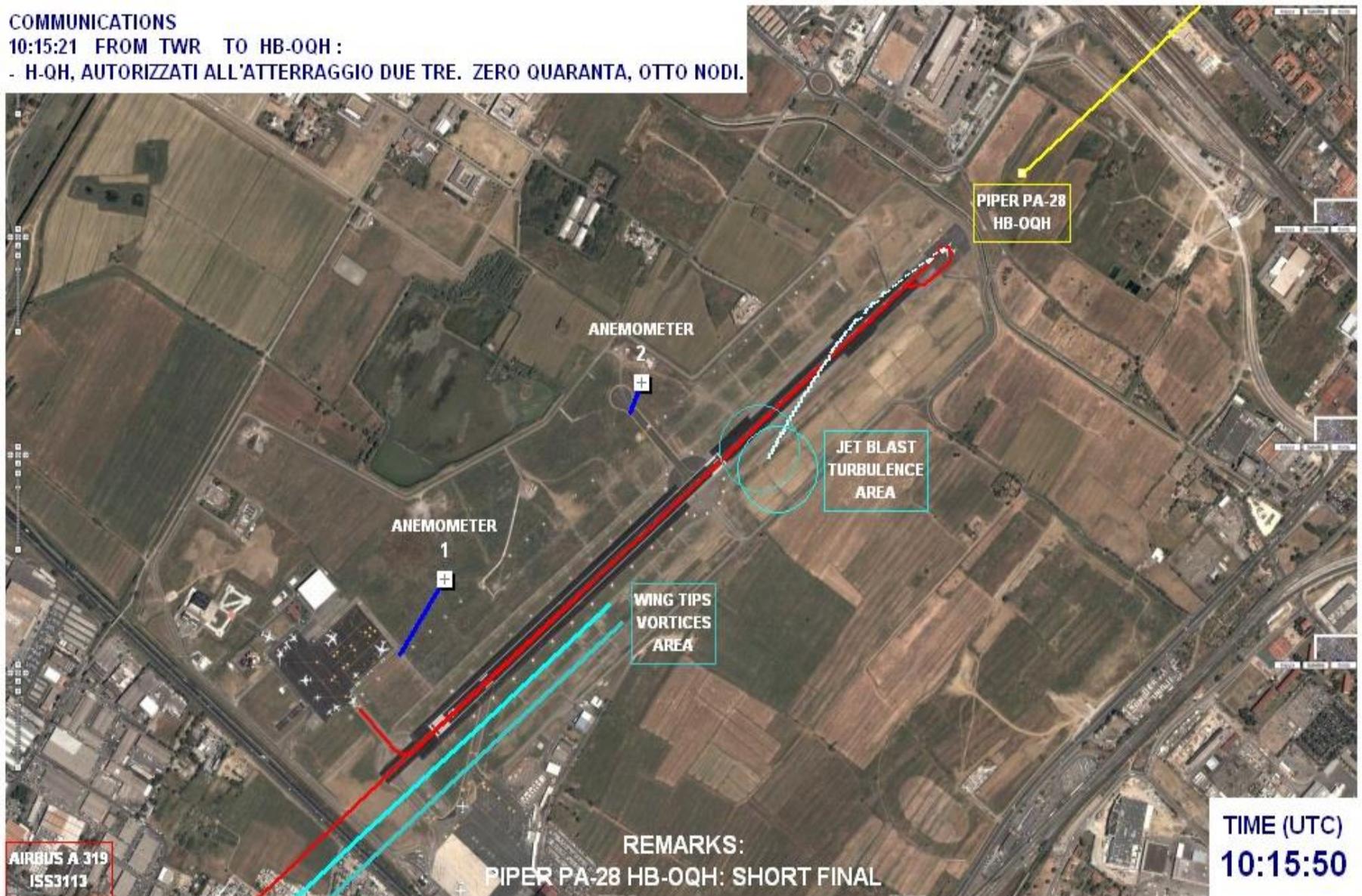
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COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH :

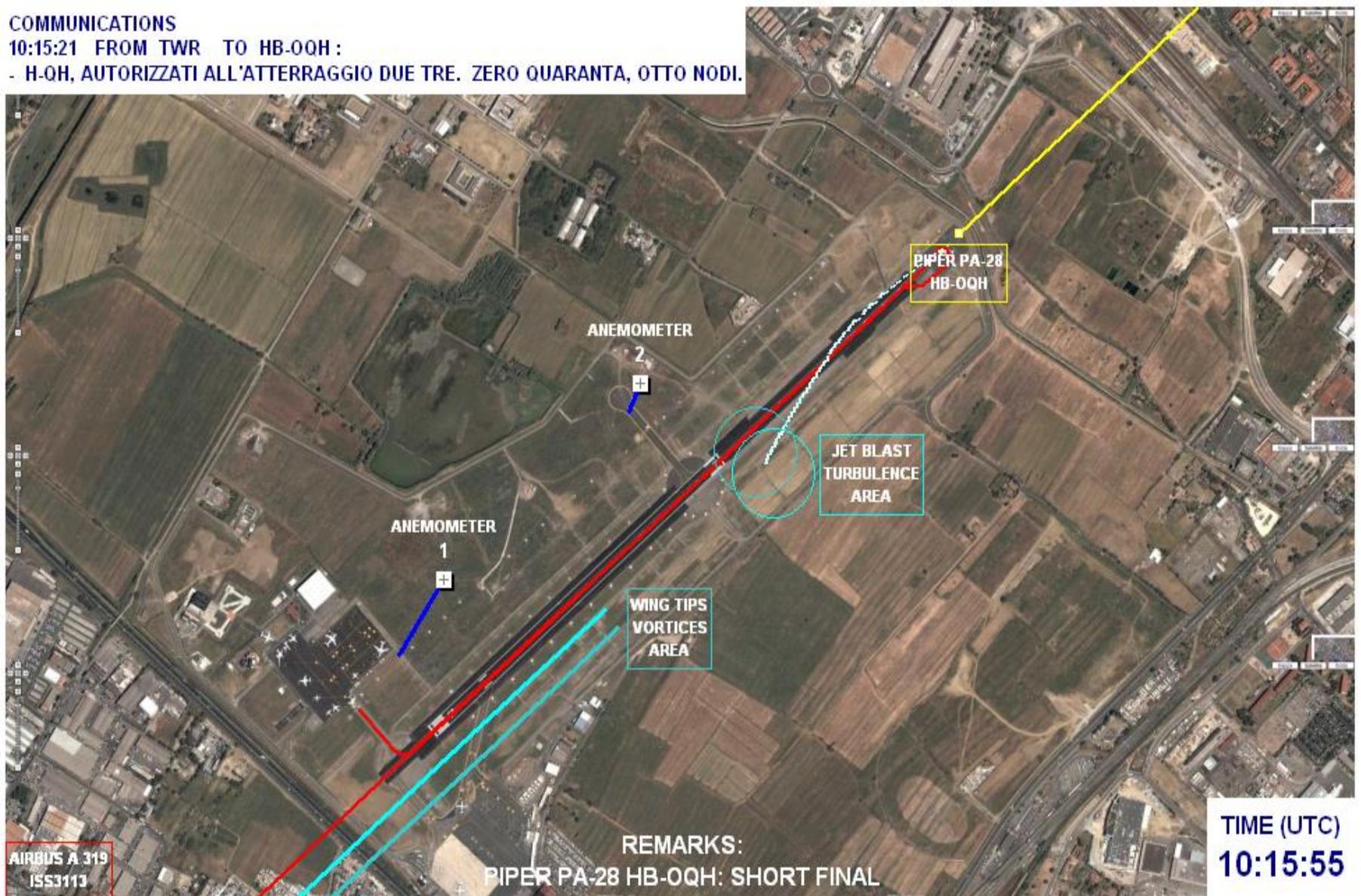
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COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH :

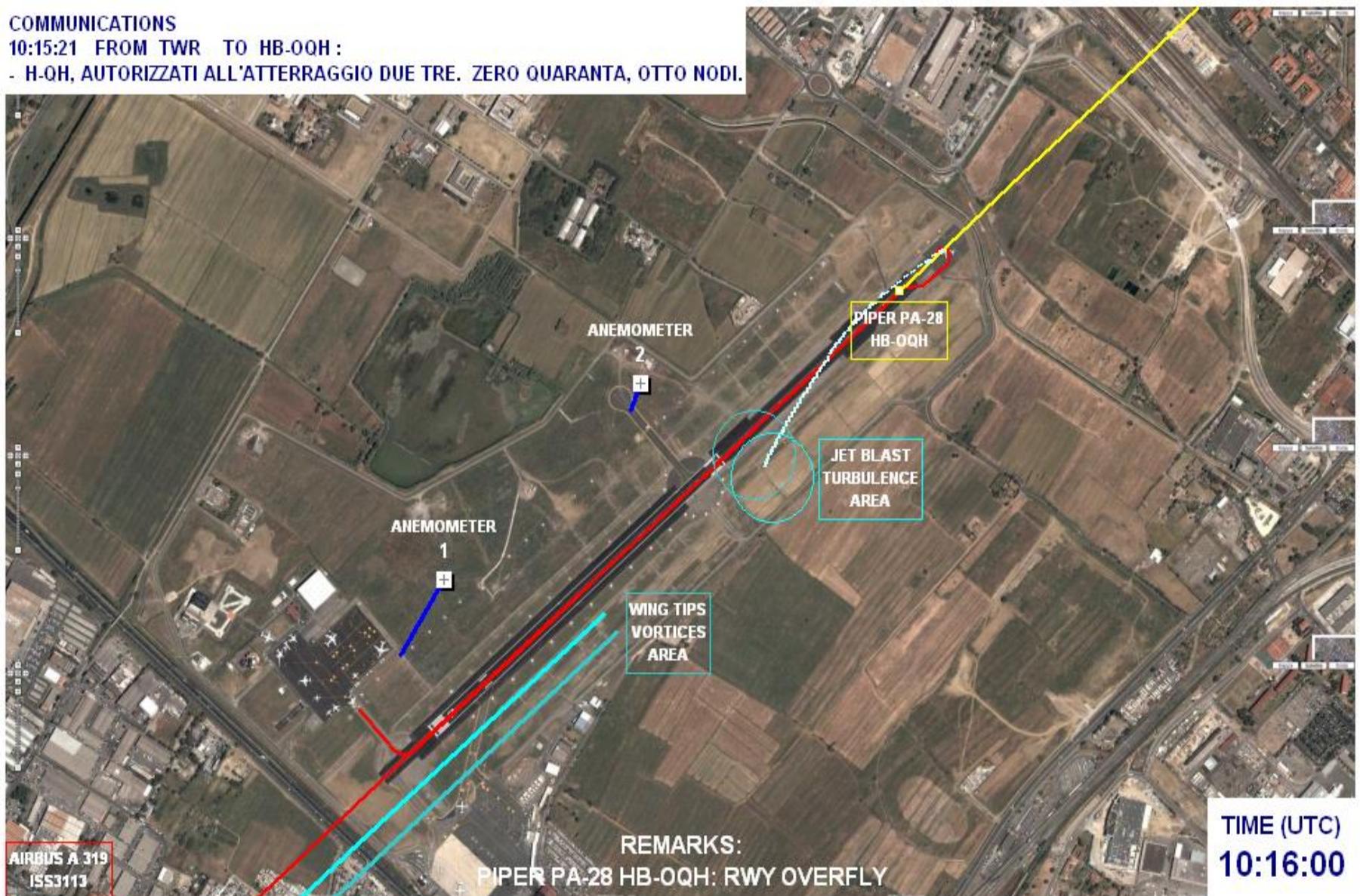
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COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH :

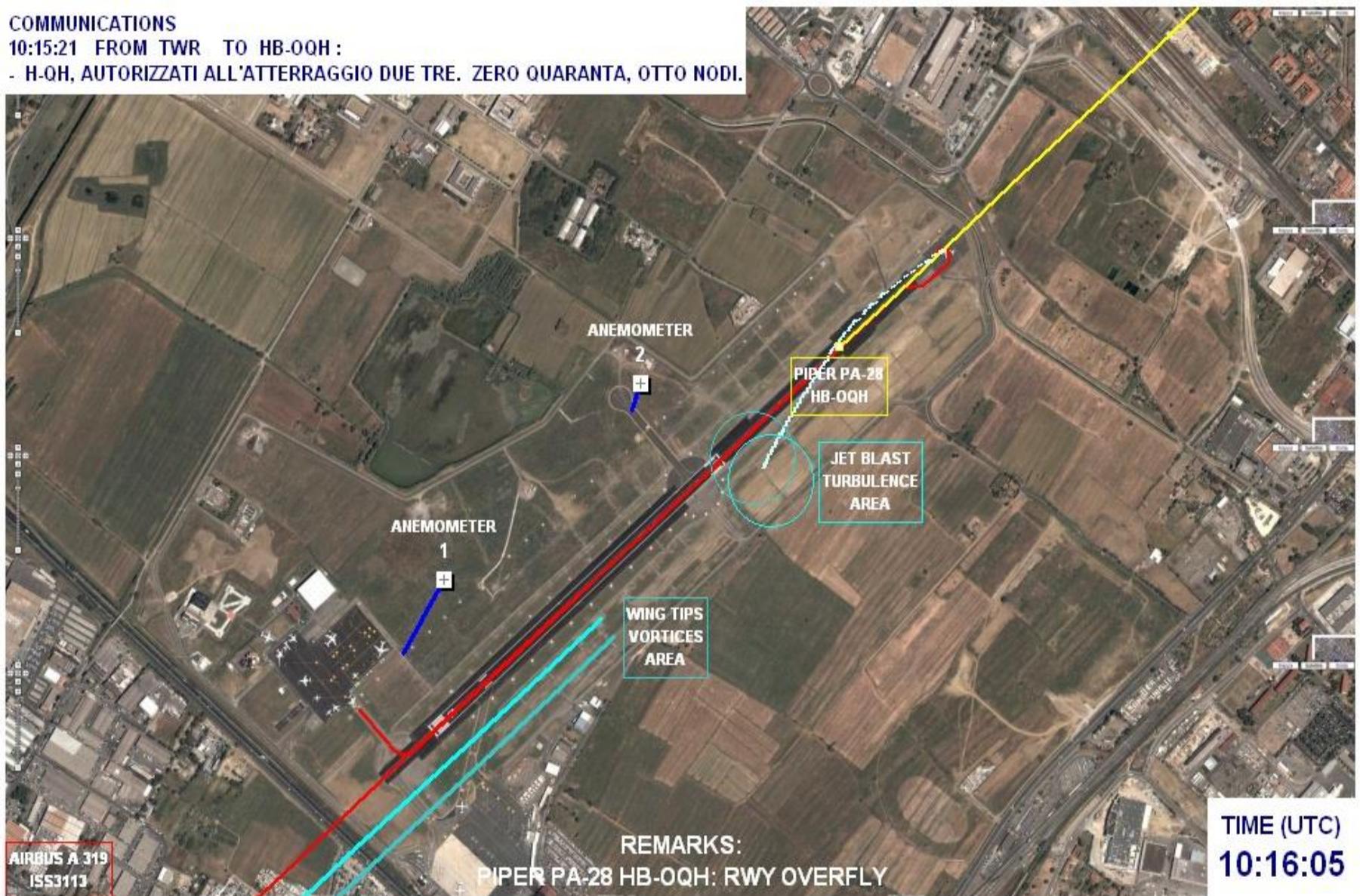
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COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH :

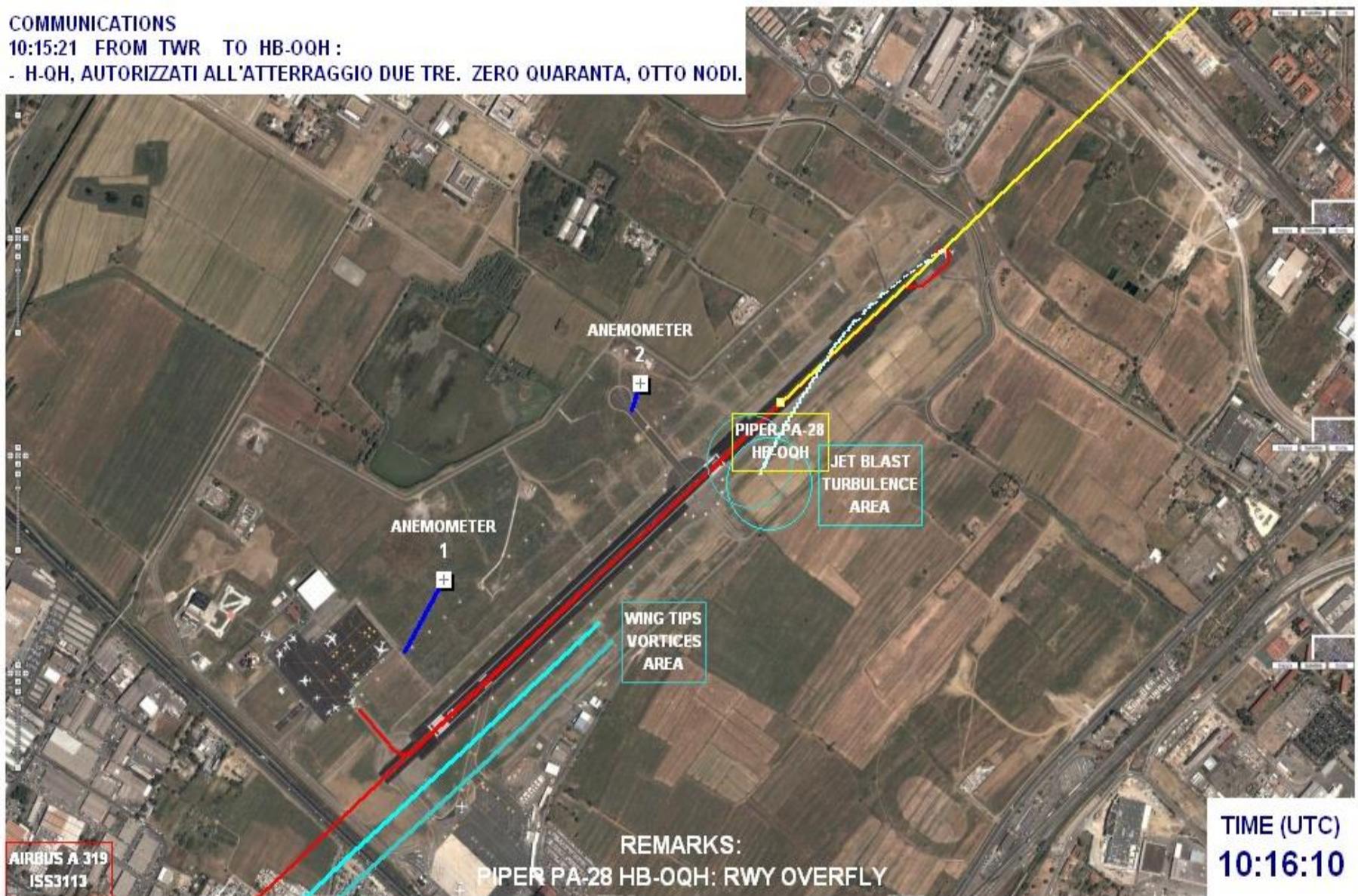
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COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH :

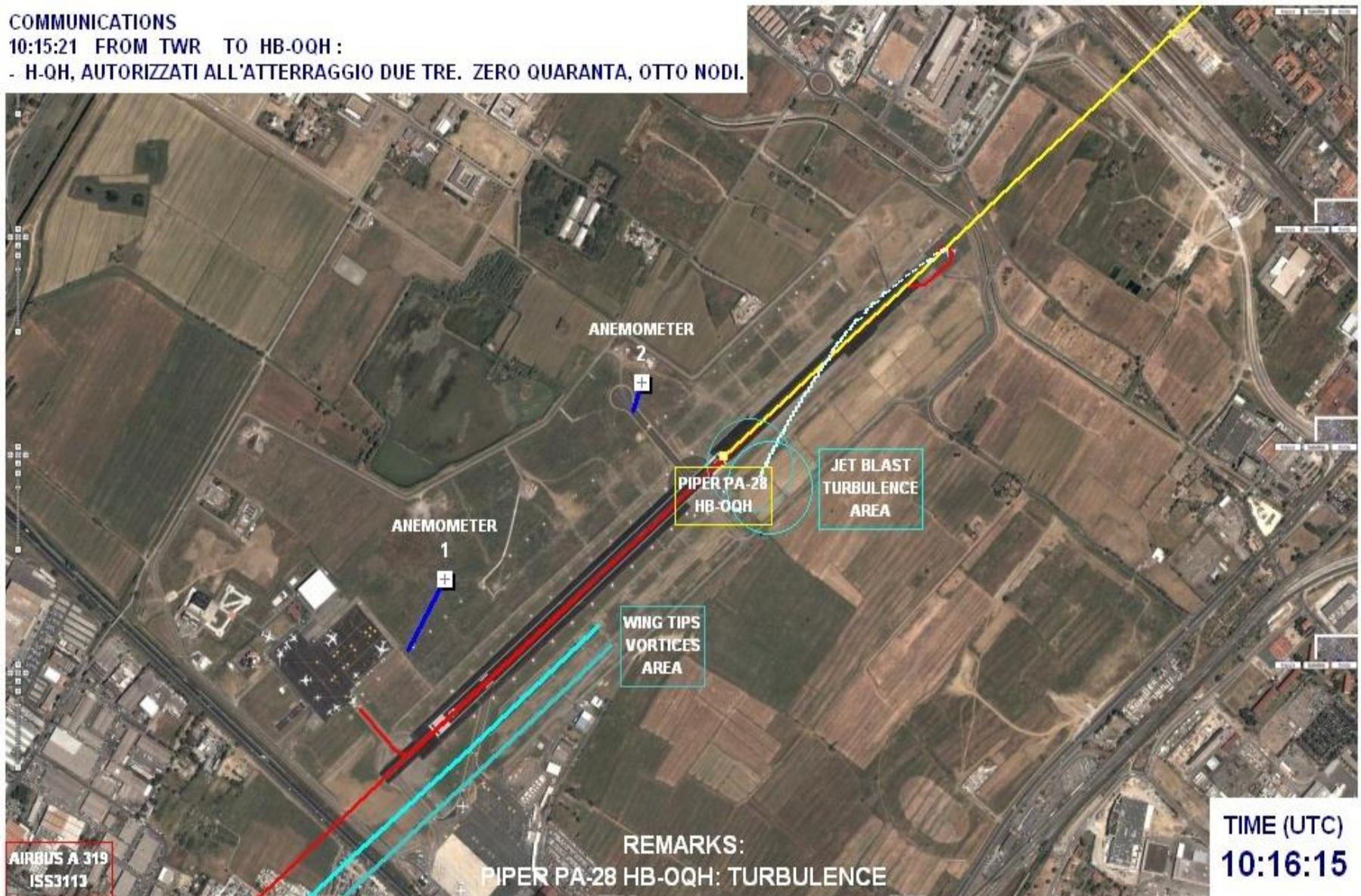
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COMMUNICATIONS

10:15:21 FROM TWR TO HB-OQH :

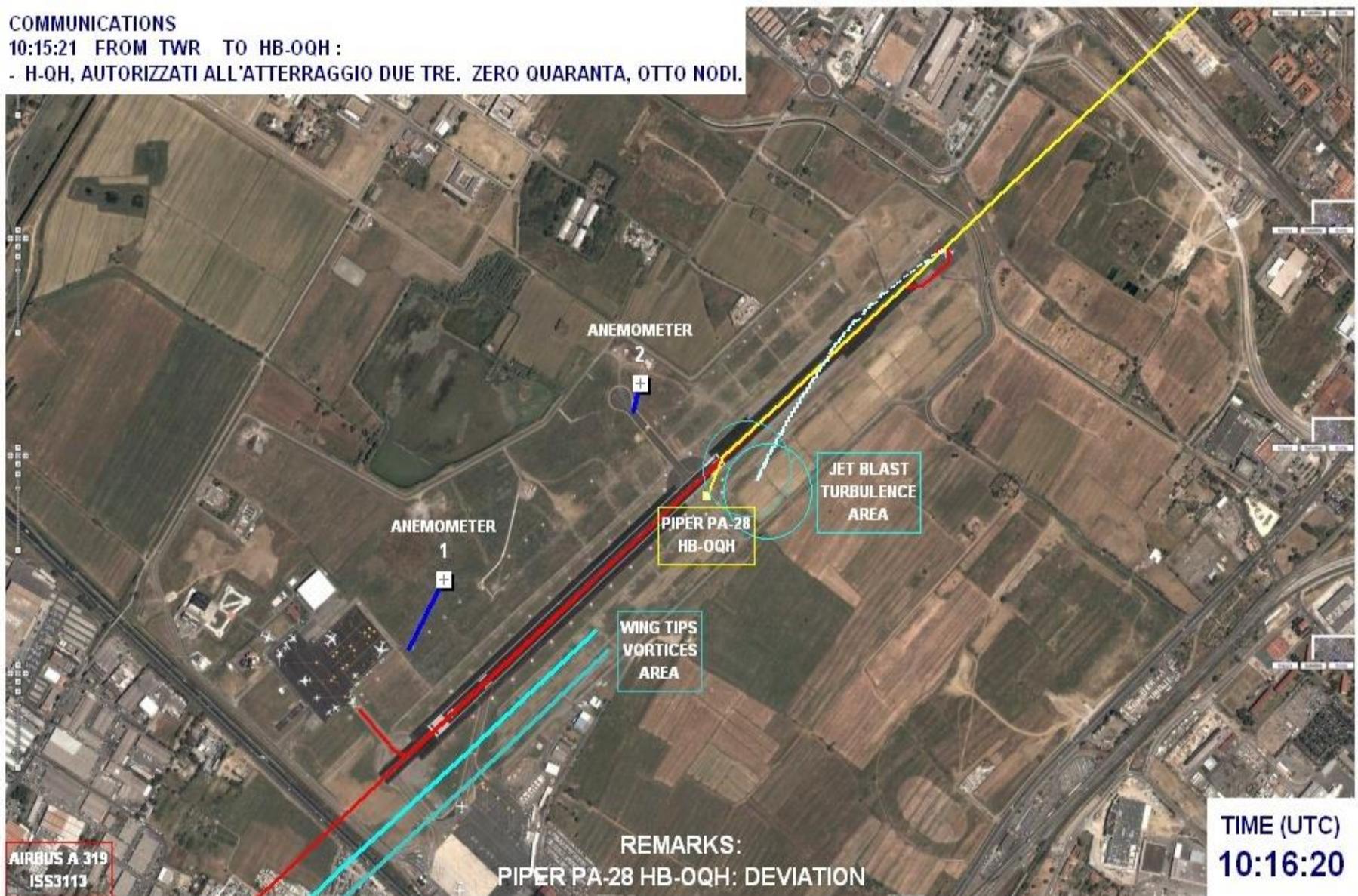
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COMMUNICATIONS

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- H-OH, AUTORIZZATI ALL'ATTERRAGGIO DUE TRE. ZERO QUARANTA, OTTO NODI.



COMMUNICATIONS

10:16:31 FROM TWR TO VVF:

- VIGILI DA TORRE?

10:16:33 FROM VVF TO TWR:

- SI', AVANTI.



COMMUNICATIONS

10:16:31 FROM TWR TO VVF:

- VIGILI DA TORRE?

10:16:33 FROM VVF TO TWR:

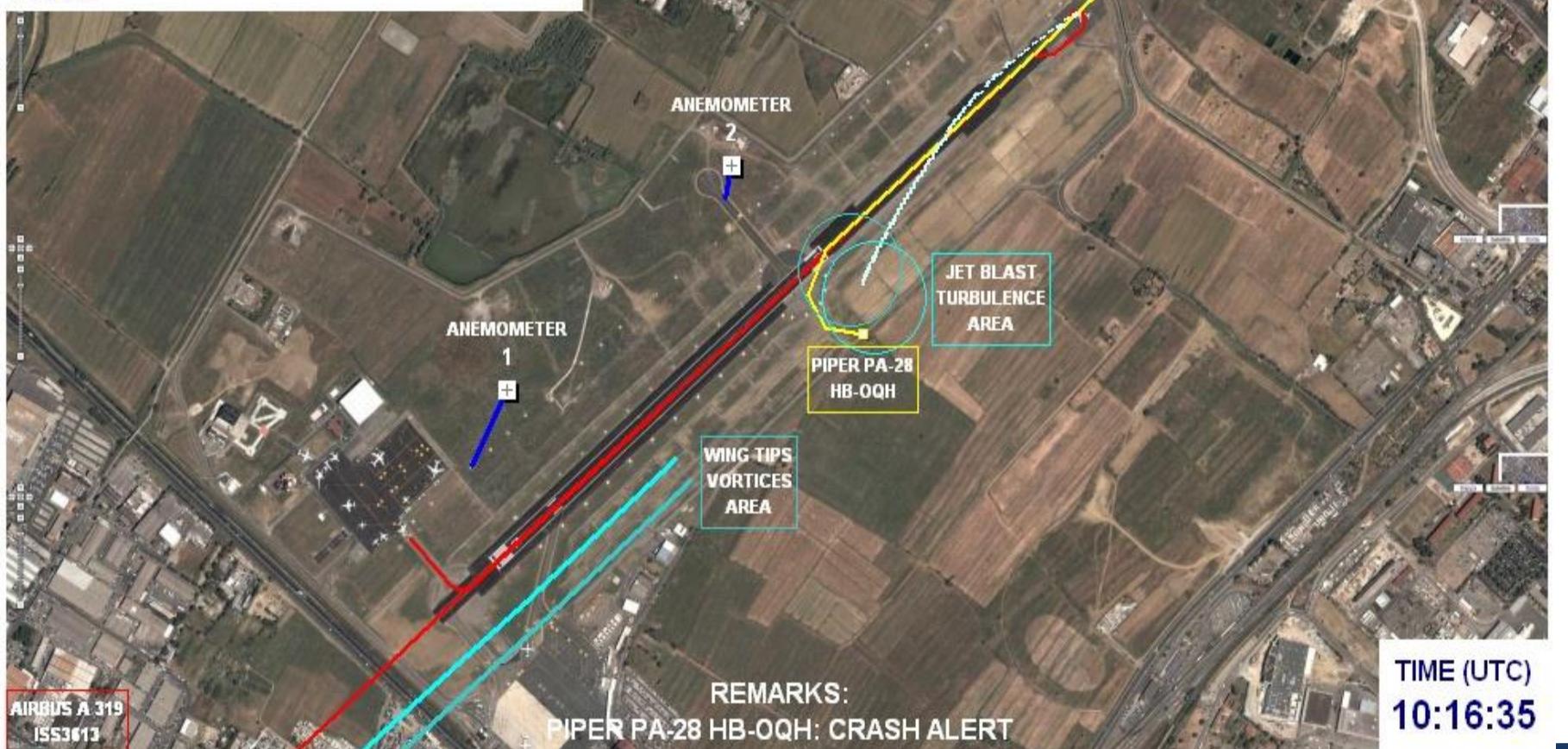
- SI', AVANTI.

10:16:35 FROM TWR TO VVF:

- SI', SCHIERATEVI, PERCHE' E' ANDATO FUORI PISTA...

10:16:38 FROM VVF TO TWR:

- DOVE?



COMMUNICATIONS

10:16:31 FROM TWR TO VVF:

- VIGILI DA TORRE?

10:16:33 FROM VVF TO TWR:

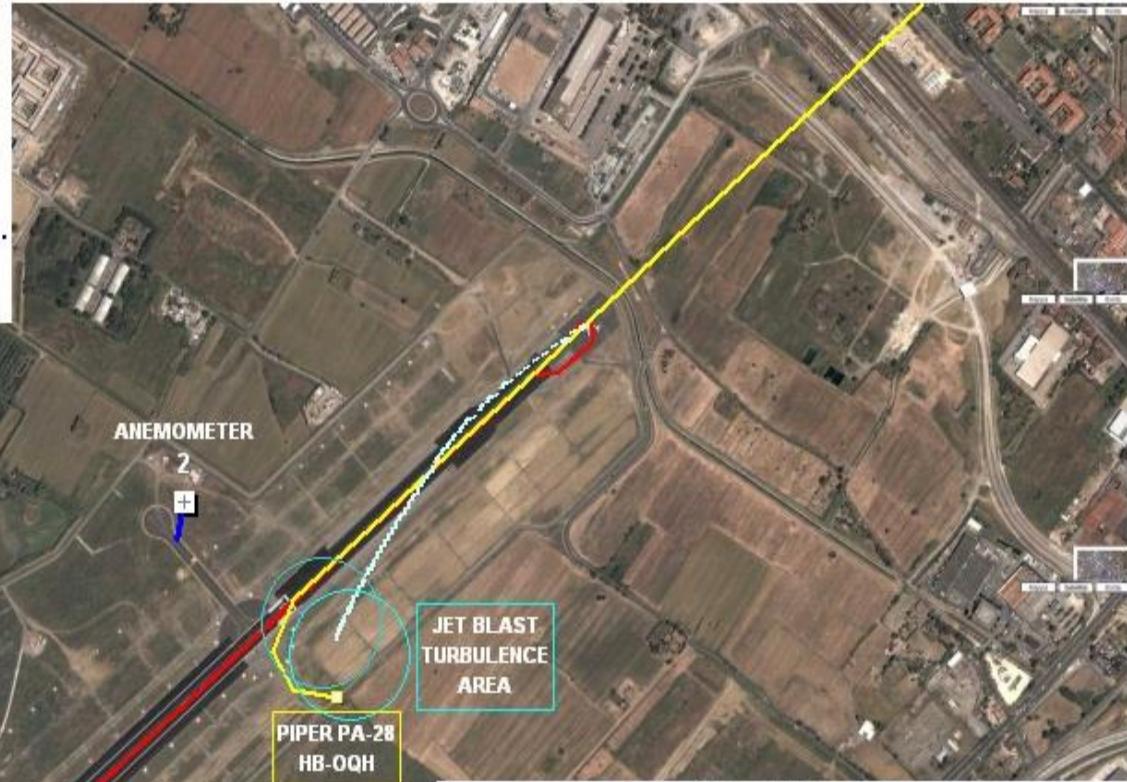
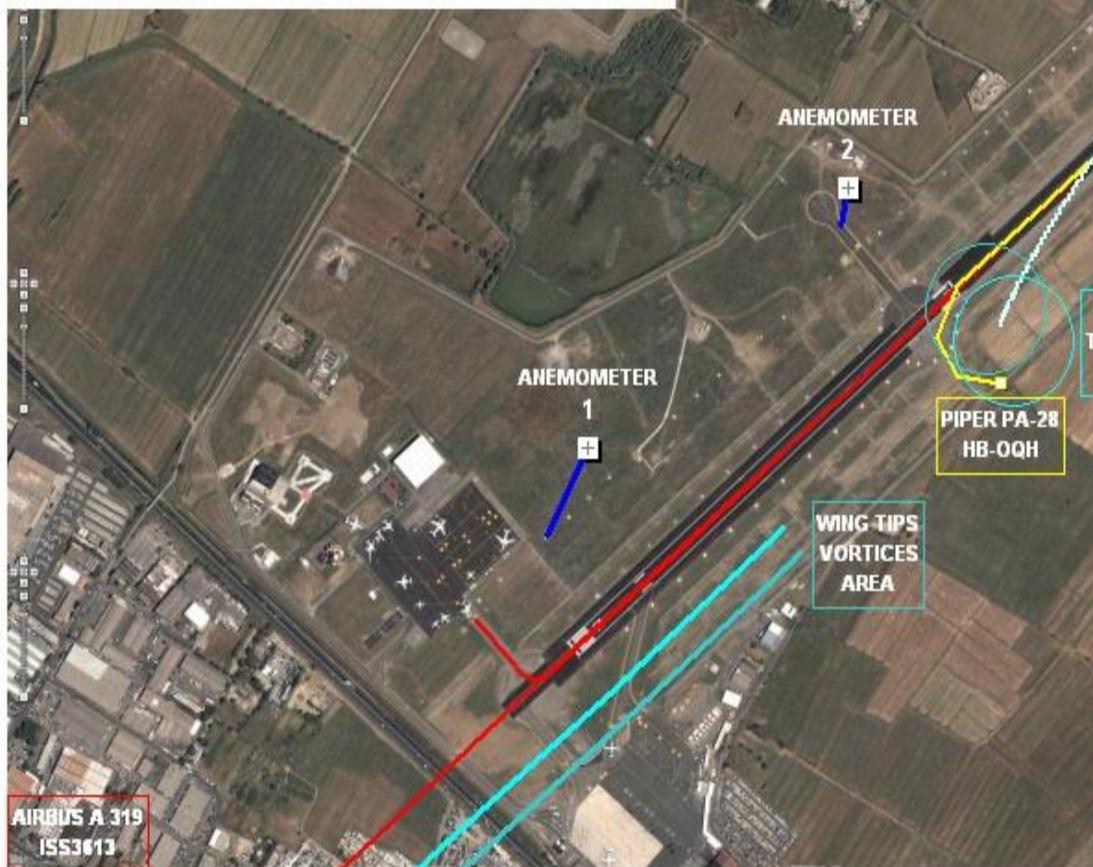
- SI', AVANTI.

10:16:35 FROM TWR TO VVF:

- SI', SCHIERATEVI, PERCHE' E' ANDATO FUORI PISTA...

10:16:38 FROM VVF TO TWR:

- DOVE?



Jet Blast als zusätzliche Gefahr bei Rückenwind

In diesem Fall führte der Rückenwind zu einer Vorwärtsbewegung des Jet Blast. Mit 8 kts Rückenwind reichten deshalb 5 Minuten zur Separation nicht aus. Wer ist schuld am Unfall?

Piloten und Flugverkehrsleiter müssen sich bewusst werden, dass die Landung mit Rückenwind nach einem vorangehendem Start eines Jets auf der gleichen Piste nicht nur wegen den Wirbelschleppen, sondern auch wegen dem Jet Blast sehr gefährlich sein kann.