JACMEL RECCE

Swift Conference 2010

Presented by
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Airfield Engineering
1 Canadian Air Division

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Tuesday Jan. 12, 2010

- an earthquake of magnitude 7.0 hits Haiti.   The epicentre is near Leogane.

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Sunday Jan. 17, 2010
7:55 p.m.

- five days after the earthquake I got the call at home.

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Sunday Jan. 17, 2010
9:40 p.m.

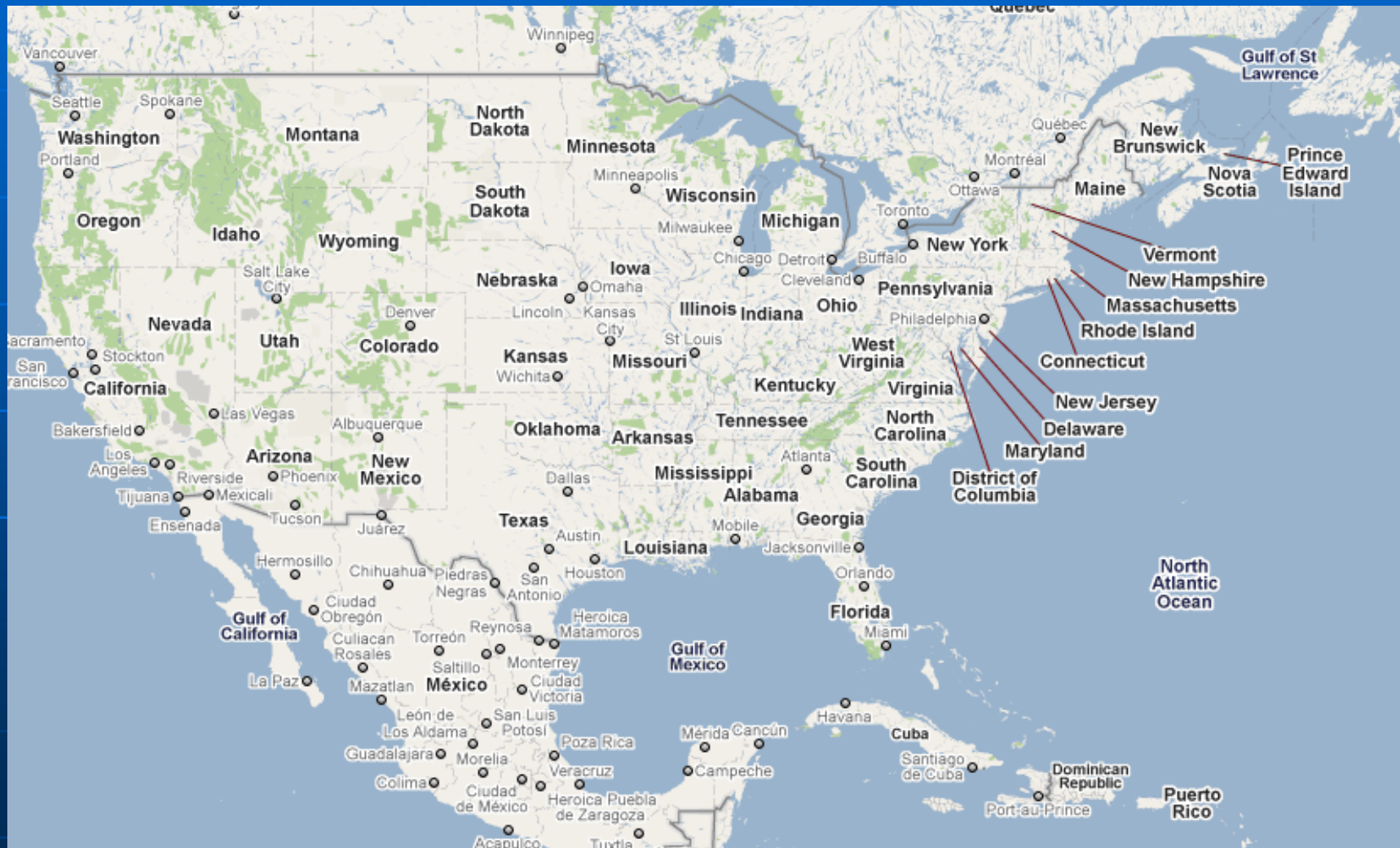- I'm on the Hercules aircraft on my way to Trenton where I hook up with Capt Sean Ivanko .
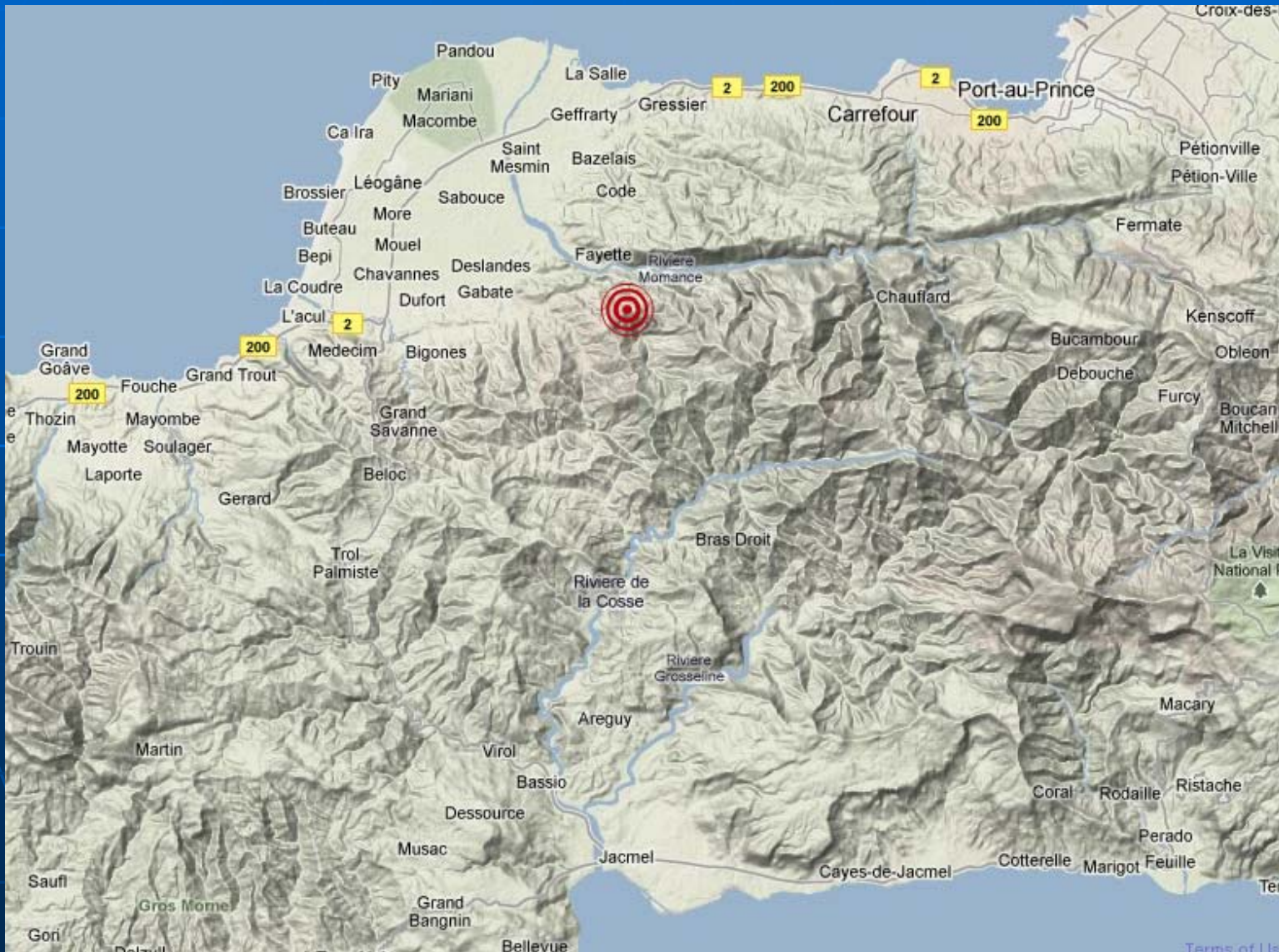
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Sometime Monday Morning

Second leg

Port au Prince.
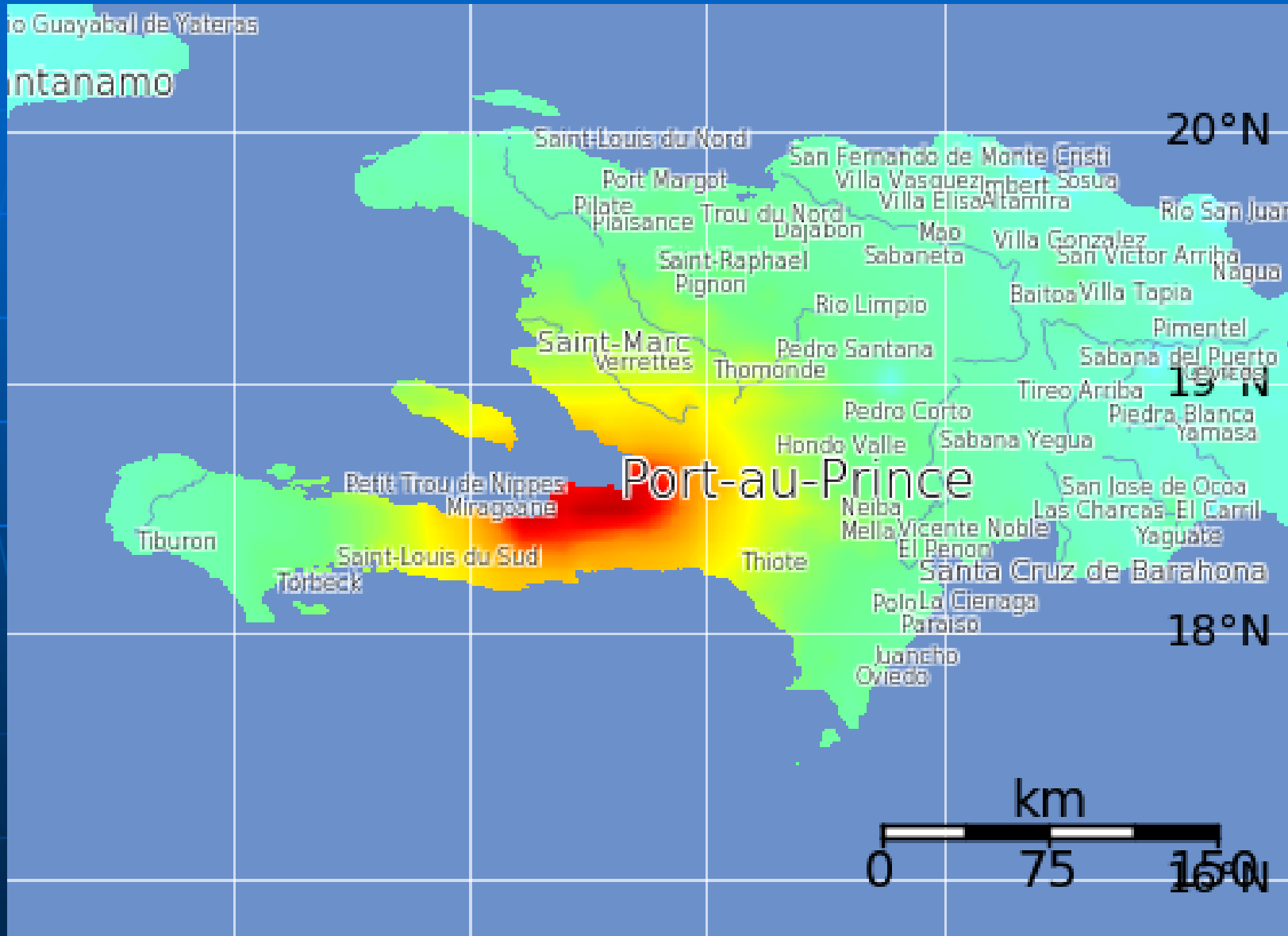
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Port au Prince

Port au Prince

Port au Prince

Port au Prince

Port au Prince

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But I'm the guy who's going to Jacmel to see if this aircraft can land there !

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![JACMEL RECCE](aerial photograph of an airstrip)

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The airfield investigation

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Monday Jan. 18, 2010
1:00 p.m.

The helicopter will be here to pick you up at 5 p.m. sharp.

Be ready !

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We have an electric coring machine but ….

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Dynamic Cone PenetrometerTesting

Dynamic Cone Penetrometer (DCP)

- An indirect method for measuring the bearing capacity of soil.

- In the DCP test, a 0.6-inch diameter, 60° cone (attached to a rod) is driven into the ground by a drop hammer of a specified weight dropped through a specified distance. The resistance to penetration, in terms of penetration depth versus hammer blow count, is recorded. The penetration resistance is then converted to CBR using correlations that have been developed over a wide range of soil types.

Automatic Data Acquisition System (ADAS)

- A system developed to automatically acquire drops and penetration per drop for the Dynamic Cone Penetrometer allowing DCPs to be performed by one person.

8) Connect the Tape Measure to the DCP as shown in the figure below.

9) Lift and Drop the weight.

Introduction

There are correlations that estimate the bearing capacity of the soil in terms of CBR. The CBR values are then used with nomographs to determine allowable passes of certain aircraft.
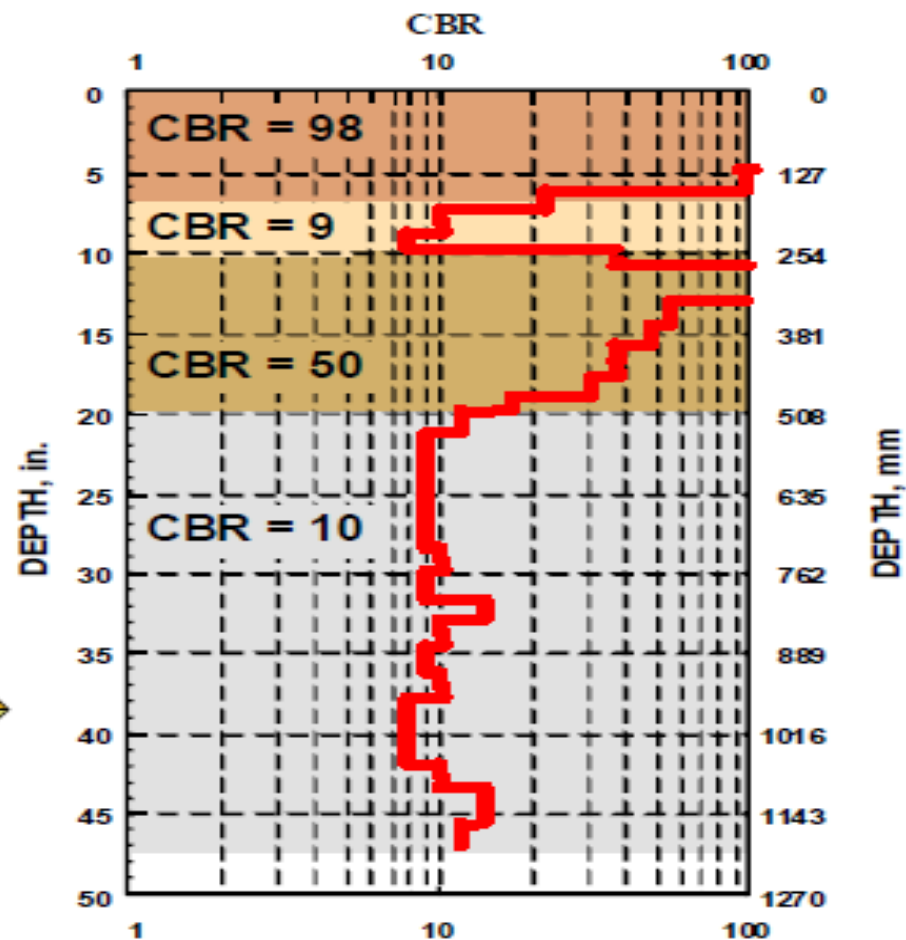
Jacmel, Haiti

1016m (3333ft) x 25m (82ft)

CC-130 Only Operations

DCP test locations.

N

1.2.

3.

5 & 6.

0.00 ft

Taxiway not available.

3,333 ft

Jacmel, Haiti

1016m (3333ft) x 25m (82ft)

CC-130 Only Operations

N

Governing Area of Concern
Extreme low CBR

Taxiway not available.

0.00 ft

390ft - 560ft

175,00lbs = 11 passes
155,000lbs = 16 passes
125,000lbs = 30 passes
100,000lbs = 60 passes

3,333 ft

Jacmel, Haiti

1016m (3333ft) x 25m (82ft)

CC-130 Only Operations

N

0 - 390 ft

175,000lbs = 9,000 passes
155,000lbs = 12,000 passes
125,000lbs = unlimited

560ft - 3,333ft

175,000lbs = 9,000 passes
155,000lbs = 12,000 passes
125,000lbs = unlimited

Taxiway not available.

0.00 ft

3,333 ft

208

Jacmel, Haiti

1016m (3333ft) x 25m (82ft)

CC-130 Only Operations

Area of concern
Low subgrade strength
Heaving and depressions

Fair to Good
asphalt surface (40mm or 1.5in)

Excellent compacted
aggregate surface.

Area of concern
Low subgrade strength
Heaving and depressions

JACMEL Airfield – 23 Jan 10

Last Report: 2030 hrs 22 Jan 10

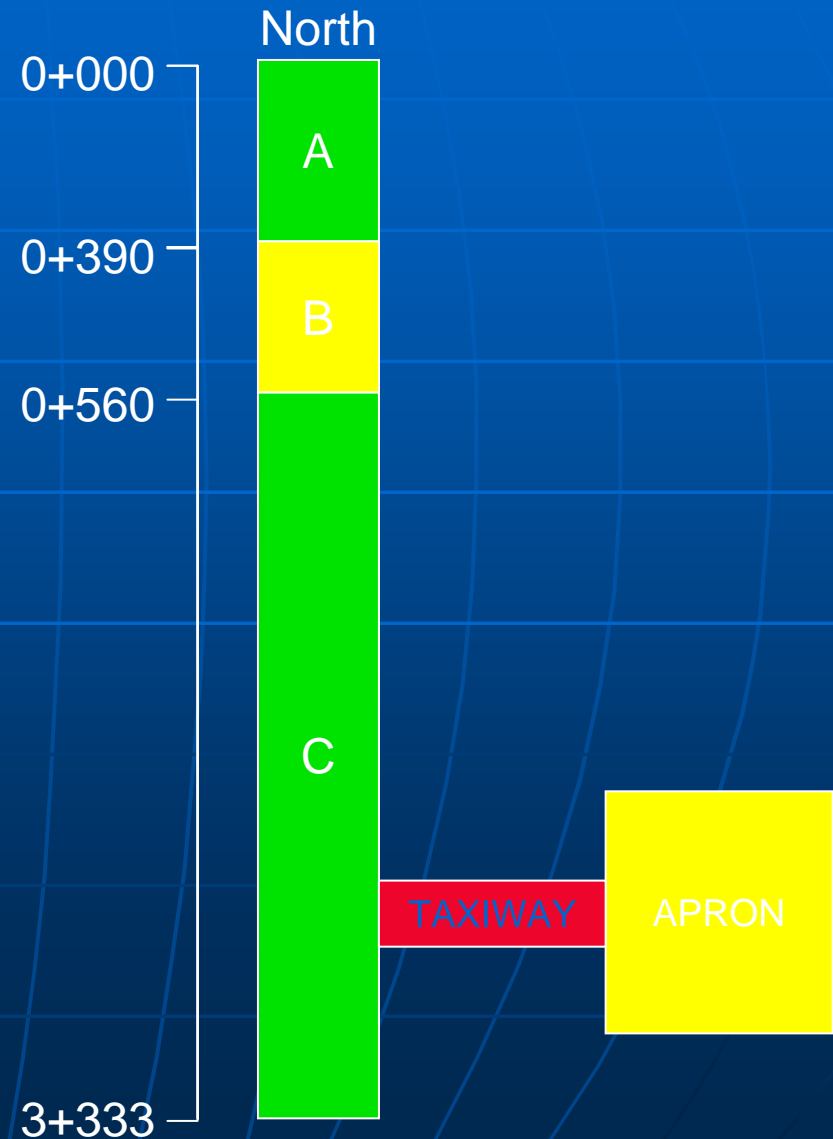Sorties (22 Jan 10): Unknown (all under 125,000 lbs)

Observations:

  A. NSTR

  B. Worsening deflection

  C. NSTR

  Taxiway: NSTR

  Apron: NSTR

Other:

- Investigating taxiway improvements
- Coord with CEFCOM/TF Engr on future runway repairs

North

0+000

A

0+390

B

0+560

C

TAXIWAY APRON

3+333

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The return home

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Sometime Monday night

Me and five other passengers return in a C-17 to
Trenton arriving at 2 a.m. Tuesday morning

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And the journey ends returning to Winnipeg at 2 p.m. Tuesday afternoon.

And so ends my 42 hour round trip tour to Haiti and back home.

Canada
EARNS ITS WINGS

Winnipeg Free Press
Jan 30, 2010

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Afterthoughts:

- You think you're coherent
- Newspaper article
- Airfield Surface Assessment & Repair Course.

hift strip at Jacmel.

As commander of Winnipeg-based 17 Wing, Canada's air force command headquarters, Blondin alone made the decision to convert Jacmel's too-short, too-narrow, too-soft runway into a fully functioning airport to support disaster assistance efforts.

Blondin said Canada needed Jacmel because Port-au-Prince airport was overwhelmed. Now under U.S. control, the airport is receiving up to 180 flights a day. However, despite its proximity to the tiny island and connection through Haitian diaspora, Canada had just four of those.

In a search for that alternate route, Blondin and his staff identified Jacmel, just 30 kilometres to the south of the capital. However, the Americans in particular were convinced that at 3,300 feet, it was too short and provided too little margin for error for landings. They also believed the asphalt was too soft and would be torn to shreds by the weight of cargo planes. Foothills to the north and tall trees to the south further complicated matters.

Blondin dispatched a military engineer to Haiti to examine the runway first hand. Around

After visiting the airstrip first-hand on Jan. 26, Blondin could only shake his head in amazement at what his flight crews had accomplished. At just 975 metres, the Hercules had to hit its spot bang-on. The plane needs up to 305 metres to touch down, and then 640 metres to stop. The asphalt is so soft (airport runways are normally made of concrete) the planes must be careful when turning not to get too close to the edge, or risk sliding off into a ditch.

At the north end of the runway, Blondin found a small damp patch in the asphalt. Closer inspection revealed a hole about the size of a bagel. Blondin reached down, and dug out a small handful of black asphalt that had the consistency of mashed potatoes.

"This is what we are afraid of," Blondin said. "We're going to tear the strip up. We don't know if we can continue to use the airport here if this gets worse."

And in an ironic stroke, Blondin said he was contacted by the U.S. air force, which is so impressed with what the Canadians have done in Jacmel they want to bring in an 100 additional flights over the next two weeks.