



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA**

PRELIMINARY

KNKT.18.08.32.04

Aircraft Accident Investigation Report

PT. Marta Buana Abadi (Dimonim Air)

PAC 750XL; PK-HVQ

Menek Mountain, Oksibil, Papua

Republic of Indonesia

11 August 2018

2018

This Preliminary Report is published by the Komite Nasional Keselamatan Transportasi (KNKT), Transportation Building, 3rd Floor, Jalan Medan Merdeka Timur No. 5 Jakarta 10110, Indonesia.

The report is based upon the initial investigation carried out by the KNKT in accordance with Annex 13 to the Convention on International Civil Aviation, the Indonesian Aviation Act (UU No. 1/2009) and Government Regulation (PP No. 62/2013).

The preliminary report consists of factual information collected until the preliminary report published. This report will not include analysis and conclusion.

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Jakarta, Oktober 2018
**KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
CHAIRMAN**


SOERJANTO TIAHJONO

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ABBREVIATIONS AND DEFINITIONS

ACO	:	Aeronautical Communication Officer
AIP	:	Aeronautical Information Publication
ALA	:	Aerodrome for Light Aircraft
AOC	:	Air Operator Certificate
BMKG	:	<i>Badan Meteorologi Klimatologi Geofisika</i> / Meteorological Climatological and Geophysics Agency
C of A	:	Certificate of Airworthiness
C of R	:	Certificate of Registration
CASR	:	Civil Aviation Safety Regulation
CFIT	:	Controlled Flight Into Terrain
DGCA	:	Directorate General of Civil Aviation
ELT	:	Emergency Locator Transmitter
GPS	:	Global Positioning System
ICAO	:	International Civil Aviation Organization
km	:	Kilometer
KNKT	:	Komite Nasional Keselamatan Transportasi
LT	:	Local Time
NDB	:	Non-Directional Beacon
Nm	:	Nautical Mile
TIBA	:	Traffic Information Broadcast by Aircraft
UTC	:	Universal Time Coordinated
VFR	:	Visual Flight Rules

SYNOPSIS

On 11 August 2018, a PAC 750XL aircraft registered PK-HVQ was being operated by PT. Marta Buana Abadi (Dimonim Air) on unscheduled passenger flight from Tanah Merah to Oksibil.

The flights of the day scheduled for the aircraft and the pilot were Tanah Merah – Oksibil – Tanah Merah – Manggelum – Tanah Merah – Bomakia – Tanah Merah. The weather information from Oksibil indicated no improvement on weather condition and the pilot decided to change the flight schedule and cancelled the flight Tanah Merah to Oksibil. During the flight, the pilot monitored from the radio frequency that there were two aircraft flew from Tanah Merah to Oksibil and returned.

At 1340 LT, on daylight condition a Cessna C208B aircraft registered PK-FSG departed from Tanah Merah to Oksibil. Two minutes later, the PK-HVQ aircraft departed from Tanah Merah to Oksibil with intended cruising altitude of 7,000 feet, on board the aircraft were one pilot, one observer pilot and 7 passengers and 386 kg of fuel which was sufficient for about 2 hours of flight time. According to the passenger and cargo manifest, the total weight of passenger and the baggage was 473 kg.

At 1411 LT, the PK-HVQ pilot made initial contact to Oksibil Tower controller was advised the pilot of the latest meteorological condition which was wind direction 110° with velocity of 9 knots, the visibility 1 up to 2 km, and provide clouds condition of the IWUR area, right down wind, right base of runway 11 were closed by clouds and the overhead cloud base was about 4,700 feet above mean sea level.

At 1416 LT, the Oksibil Tower controller confirmed the PK-HVQ pilot whether the aircraft position was overhead Oksibil at altitude 7,000 feet. The Oksibil Tower controller acknowledged the pilot report and instructed the pilot to continue the flight to final runway 11 and to report when the runway has in sight.

At 1419 LT, the flight following system of the Dimonim Air recorded the aircraft position was 3.1 Nm on bearing 321° from Oksibil, the altitude was 6,713 feet with ground speed 100 knots and the aircraft bearing was 356°. This was the last record information on the flight following system. The Oksibil Tower controller called the PK-HVQ pilot several times and asked the other pilots and nearby airstrips and there was no information of the PK-HVQ flight.

On 12 August 2018, at 0812 LT, the aircraft wreckage was found at about 3.8 Nm north east of Oksibil on bearing 331° with elevation about 6,700 feet. Eight occupants were fatally injured and one occupant was seriously injured.

Investigation involved Transport Accident Investigation Commission of New Zealand that assigned accredited representative according to the ICAO Annex 13.

The KNKT issued safety recommendations to address safety issues identified in this report to the Dimonim Air and the DGCA.

The investigation is continuing and KNKT plans to complete the investigation within 12 months since the day of the occurrence. Should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 11 August 2018, a PAC 750XL aircraft registered PK-HVQ was being operated by PT. Marta Buana Abadi (Dimonim Air) on unscheduled passenger and cargo flight in Papua area, Indonesia. The flights of the day scheduled for the aircraft were Tanah Merah Airport (WAKT)¹ – Oksibil Airport (WAJO)² – Tanah Merah – Manggelum Airstrip (WAKA) – Tanah Merah – Bomakia Airstrip (WAKL) – Tanah Merah.

At about 0730 LT³, Dimonim Air ground staff at Oksibil requested to the Oksibil Tower controller of the meteorological condition over Oksibil. The Oksibil Tower controller advised that the meteorological condition was below the requirement of Visual Flight Rule (VFR) weather minima. The Dimonim Air ground staff at Oksibil then relay the meteorological information to the Dimonim Air ground staff at Tanah Merah.

The flight plan of the PK-HVQ had been filled by the pilot and was submitted to the Tanah Merah Aeronautical Communication Officer (ACO). Thereafter, at 0926 LT, the flight plan of PK-HVQ aircraft with route Tanah Merah to Oksibil was submitted to the Oksibil ACO by the Tanah Merah ACO with estimate time departure was 0945 UTC.

The weather information from Oksibil indicated no improvement on weather condition, the pilot decided to change the flight schedule to Tanah Merah – Manggelum – Tanah Merah – Bomakia – Tanah Merah – Oksibil – Tanah Merah. At 1002 LT, the flight plan of PK-HVQ with route Tanah Merah to Oksibil was canceled.

At 1007 LT, the PK-HVQ aircraft departed from Tanah Merah to Manggelum.

The flights from Tanah Merah – Manggelum – Tanah Merah – Bomakia – Tanah Merah were uneventful and the aircraft landed safely in Tanah Merah at 1156 LT. The flights were conducted as single pilot operation with one training pilot who seat on the right acted as observer.

During those flights, the pilot monitored from the radio frequency that there were two aircraft flew from Tanah Merah to Oksibil and returned.

After landed the pilot asked the Dimonim Air ground staff at Tanah Merah of the weather information from Oksibil and was advised that the weather still below the requirement of VFR. The pilot decided to replace the training pilot to the other pilot as observer who had experienced to fly to Oksibil.

At 1221 LT, the flight plan for PK-HVQ flight route Tanah Merah to Oksibil with estimate time departure of 1320 LT was submitted by Tanah Merah ACO to Oksibil ACO. The flight plan stated that the flight rule would be conducted under Visual Flight Rules.

1 Tanah Merah Airport (WAKT), Papua will be named as Tanah Merah for the purpose of this report.

2 Oksibil Airport (WAJO), Papua will be named as Oksibil for the purpose of this report.

3 The Local Time (LT) in Papua is UTC+9 hours.

At 1340 LT, on daylight condition a Cessna C208B aircraft registered PK-FSG departed from Tanah Merah to Oksibil. Two minutes later, the PK-HVQ aircraft departed from Tanah Merah to Oksibil with intended cruising altitude of 7,000 feet, on board the aircraft were one pilot, one observer pilot and 7 passengers and 386 kg of fuel which was sufficient for about 2 hours of flight time. According to the passenger and cargo manifest, the total weight of passenger and the baggage were 473 kg.

At 1408 LT, the PK-FSG aircraft landed using runway 11 at Oksibil.

At 1411 LT, the PK-HVQ pilot made initial contact to Oksibil Tower controller and reported that the aircraft position was overhead visual check point IWUR maintaining altitude of 7,000 feet and the estimate time arrival at Oksibil would be 0520 UTC (1420 LT). The Oksibil Tower controller acknowledged the pilot report then instructed the pilot to report when the aircraft overhead Oksibil. The Oksibil Tower controller advised the pilot of the latest meteorological condition which was wind direction 110° with velocity of 9 knots, the visibility 1 up to 2 km, and provide clouds condition of the IWUR area, right down wind, right base of runway 11 were closed by clouds and the overhead cloud base was about 4,700 feet above mean sea level. The cloud base was based on the report of previous arrival pilot.

At 1414 LT, the PK-HVQ pilot used call sign PK-HVX, called the Oksibil Tower controller and reported that the aircraft position was over GPS checkpoint OKSX. The Oksibil Tower controller acknowledged the position report.

At 1416 LT, the Oksibil Tower controller called the PK-HVQ pilot used call sign PK-HVX and confirmed whether the aircraft position was overhead Oksibil. One minute later, the PK-HVQ pilot affirmed and advised the Oksibil Tower controller that the aircraft altitude was 7,000 feet. The Oksibil Tower controller acknowledged the pilot report and instructed the pilot to continue the flight to final runway 11 and to report when the runway has in sight.

At 1419 LT, the flight following system⁴ of the Dimonim Air recorded the aircraft position was 3.1 Nm on bearing 321° from Oksibil at altitude 6,713 feet, ground speed 100 knots and the aircraft bearing 356°. This was the last record information on the flight following system. A few seconds later, the Oksibil Tower controller called the PK-HVQ pilot with call sign PK-HVX and asked the aircraft position several times with no answer.

⁴ The Dimonim Air utilizes flight following system provided by Spider Tracks Limited with type/model Spider 7 which manufactured in New Zealand.

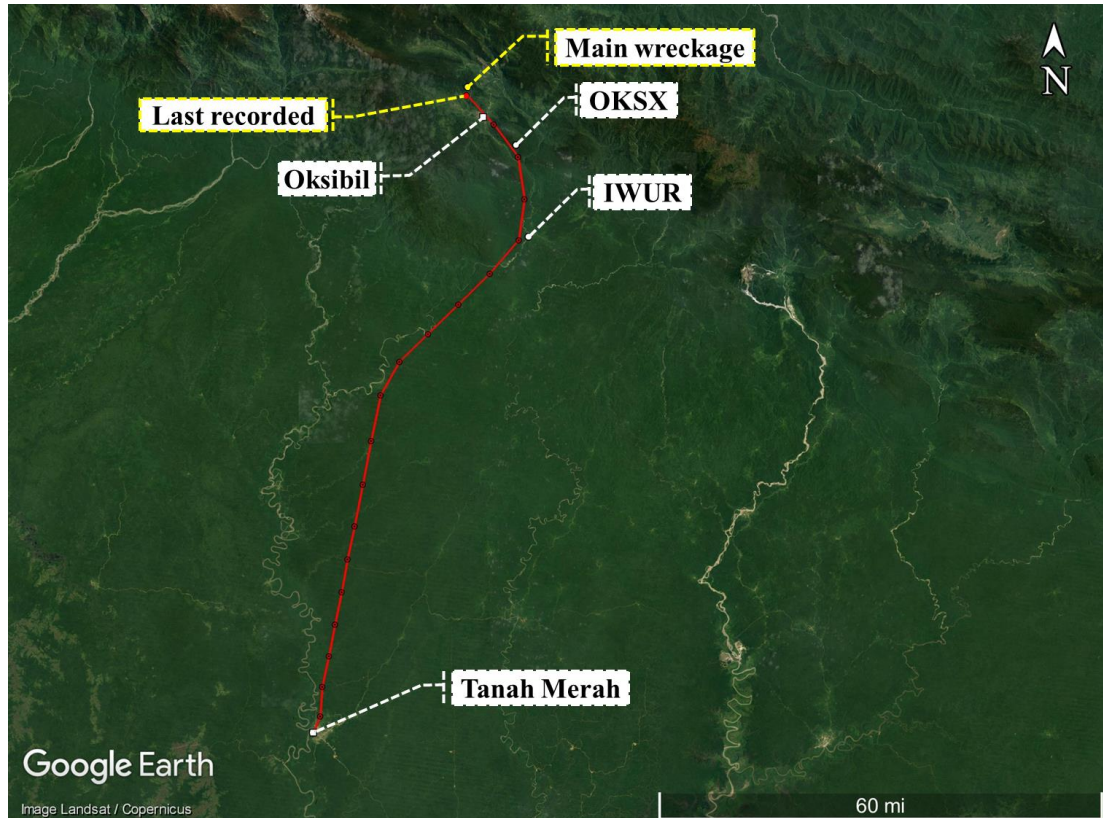


Figure 1: The PK-HVQ flight path based on Spidertracks

At 1421 LT, the PK-FSG pilot who monitored the Oksibil Tower frequency advised the tower controller that the right call sign for the arriving aircraft was PK-HVQ instead of PK-HVX. The tower controller then called the PK-HVQ pilot five times with no answer.

At 1423 LT, the Oksibil Tower controller requested the PK-FSG pilot to call the PK-HVQ pilot on Traffic Information Broadcast by Aircraft (TIBA) frequency (122.7 MHz) and there was no answer.

At 1433 LT, the Oksibil Tower controller requested pilot of another arrival aircraft, a Cessna 208B registered PK-RSC from Tanah Merah to Oksibil whether monitored PK-HVQ and was responded that there was no visual contact or communication from PK-HVQ pilot.

At 1439 LT, the PK-RSC aircraft landed on runway 11 at Oksibil.

At 1510 LT, the Oksibil Tower controller advised the occurrence to the ACO of Sentani International Airport (WAJJ), Papua⁵ and National Search and Rescue Agency. The tower controller then asked the PK-HVQ flight to the nearby airstrips and there was no information of the PK-HVQ flight.

On 12 August 2018, at 0534 LT, a Cessna C208B aircraft registered PK-HVC operated by Dimonim Air departed from Tanah Merah to Oksibil for search mission. At 0615 LT, the PK-HVC pilot informed the tower controller that the pilot had visual contact with the PK-HVQ wreckage on coordinate of 04° 51.07" S 140° 35.94" E.

⁵ Sentani International Airport (WAJJ), Papua will be named as Sentani for the purpose of this report.

At 0812 LT, the ground search team arrived on accident site which was on Menuk mountain, at about 3.8 Nm north east of Oksibil on bearing 331° with elevation about 6,700 feet. The aircraft was destroyed by impact forces. The eight occupants were fatally injured and one passenger was seriously injured. The occupants evacuated to the local hospital in Oksibil and transported to the hospital in Jayapura. The seriously injured passenger was given further treatment.

1.2 Injuries to Persons

Injuries	Flight crew	Passengers	Total in Aircraft	Others
Fatal	2	6	8	-
Serious	-	1	1	-
Minor	-	-	-	Not applicable
None	-	-	-	Not applicable
TOTAL	2	7	9	-

The fatally injured pilot was Papua New Guinean and the rest occupants were Indonesian.

The seriously injured passenger suffered broken arm and spleen injury.

1.3 Damage to Aircraft

The aircraft was destroyed by impact forces.

1.4 Other Damage

There was no other damage to property and/or the environment.

1.5 Personnel Information

1.5.1 Pilot

Age : 53 years
Nationality : Papua New Guinean
Date of joining company : 17 October 2017
License : Airline Transport Pilot License
 Date of issue : 26 February 2015
 Aircraft type rating : PAC 750XL
Instrument rating validity : 10 May 2019
Medical certificate : First Class
 Last of medical : 10 May 2018
 Validity : 10 January 2019
 Medical limitation : None
Last line check : 30 November 2017
Last proficiency check : 10 May 2018

Flying experience

Total hours : 13,665.43 hours
Total on type : 1,468.43 hours
Last 90 days : 14.30 hours
Last 30 days : 14.44 hours
Last 7 days : 14.44 hours
Last 24 hours : 6.11 hours
This flight : About 49 minutes

1.5.2 Observer Pilot

Gender : Male
Age : 45 years
Nationality : Indonesian
Marital status : Married
Date of joining company : 18 April 2018
License : Commercial Pilot License
 Date of issue : 20 August 1995
 Aircraft type rating : Cessna C208
Instrument rating validity : 30 June 2019
Medical certificate : First Class
 Last of medical : 27 April 2018
 Validity : 26 October 2018
 Medical limitation : Shall wear lenses that correct for distant vision and possess glasses that correct for near vision
Last line check : N/A
Last proficiency check : 30 June 2019

Flying experience

Total hours : 3,557.63 hours
Total on type : 277.63 hours (Cessna C208)
Last 90 days : 34.28 hours
Last 30 days : 19.37 hours
Last 7 days : 19.37 hours
Last 24 hours : About 49 minutes
This flight : About 49 minutes

1.5.3 Oksibil Air Traffic Controller

	Controller	Supervisor
Age	: 26 years	32 years
Nationality	: Indonesia	Indonesia
License	: Air Traffic Controller	Air Traffic Controller
Date of issue	: 5 May 2017	1 November 2014
Type rating	: Oksibil Control Tower	Oksibil Control Tower
Validity	: 15 November 2018	15 November 2018
Medical certificate	: Third Class	Third Class
Last of medical	: 23 July 2018	23 July 2018
Validity	: 23 July 2020	23 July 2020
Medical limitation	: None	None
ICAO Language Proficiency	: Level 4	Level 4
Date of issue	: 6 January 2017	18 May 2018
Validity	: 6 January 2020	18 May 2021
Working time⁶		
Last 7 days	: 36 hours	27 hours
Last 24 hours	: 3 hours 19 minutes	5 hours
Duty time⁷		
Last 7 days	: 17 hours 30 minutes	15 hours 30 minutes
Last 24 hours	: 49 minutes	5 hours

1.6 Aircraft Information

1.6.1 General

Registration Mark	: PK-HVQ
Manufacturer	: Pacific Aerospace Limited
Country of Manufacturer	: New Zealand
Type/Model	: PAC 750XL
Serial Number	: 144
Year of Manufacture	: 2008
Certificate of Airworthiness	
Issued	: 15 June 2018

⁶ The working time is the time period when the person attends their particular working shift.

⁷ The duty time is the time period when the person performs their duty to provide air traffic control service.

Validity : 14 June 2019
Category : Normal
Limitations : None
Certificate of Registration
Number : 3927
Issued : 8 March 2017
Validity : 7 March 2020
Time Since New : 4,574.70 hours
Cycles Since New : 5,227 cycles
Last Major Check : August 2017 (propeller replacement)
Last Minor Check : 17 January 2018 (100 hours engine inspection)

1.6.2 Engines

Manufacturer : Pratt & Whitney
Type/Model : PT6A-34
Serial Number : PCE-RB0397
Time Since New : 1,799.95 hours
Cycles Since New : 1,849 cycles

1.6.3 Propellers

Manufacturer : Hartzell
Type/Model : HC-B3TN-3D
Serial Number : BUA-31749
Time Since New : 231.9 hours

1.6.4 Weight and Balance

Fuel on board : 850 pounds (386 kg)
Total weight of passenger and baggage on board : 473 kg (listed on the passenger and cargo manifest)
Total take-off weight : 2,749 kg

1.6.5 Global Positioning System⁸

The aircraft was fitted with two Global Positioning System (GPS) Garmin GNS 430. The GPS has communication capability and provides navigation data including terrain information.

The GNS 430 has TERRAIN page which could display terrain information based on database of Terrain Data cards inserted on the GPS. The terrain information is visualized to pilot on the TERRAIN page of the display. The GNS 430 Pilot Guides and References stated that TERRAIN feature on this GPS is not intended to be used as a primary reference for terrain avoidance and does not relieve the pilot from the responsibility of being aware of surroundings during flight. The Garmin is a non-TSO-C151b-certified terrain awareness system incorporated into GNS 430 units to increase situational awareness and aid in reducing controlled flight into terrain (CFIT).

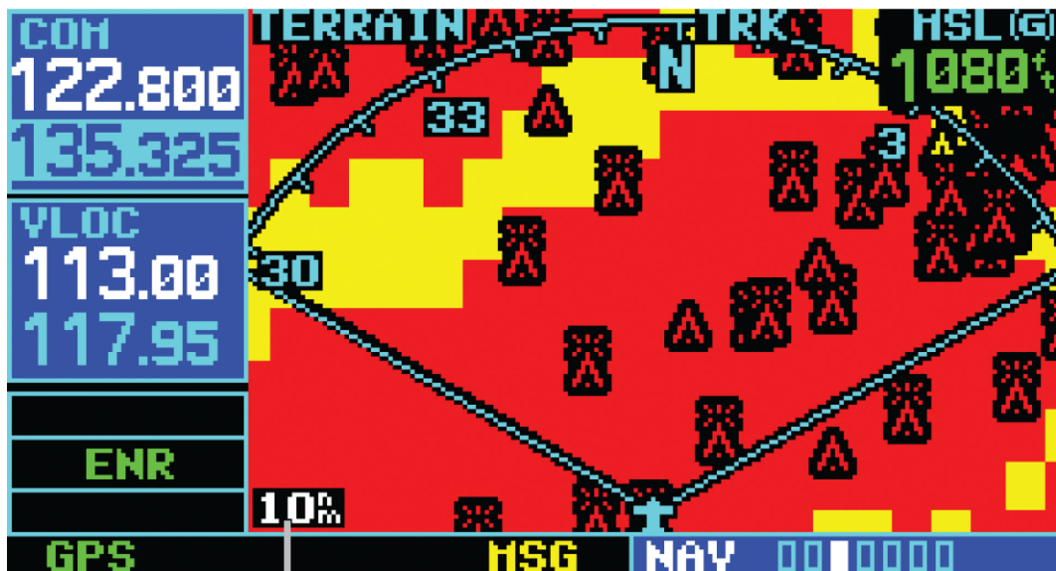


Figure 2: Sample of the TERRAIN page display

The terrain information is visualized into color and symbols to represent obstacle and potential impact points. Red terrain color means the terrain/obstacle is above or within 100 feet below the aircraft altitude, yellow terrain color means the terrain/obstacle is between 100 and 1,000 feet below the aircraft altitude and black terrain color means the terrain/obstacle is more than 1000 feet below the aircraft altitude. The symbols used on the TERRAIN page are as follows:

⁸ The information in this subchapter was taken from Garmin GNS 430(A) Pilot's Guide and Reference.

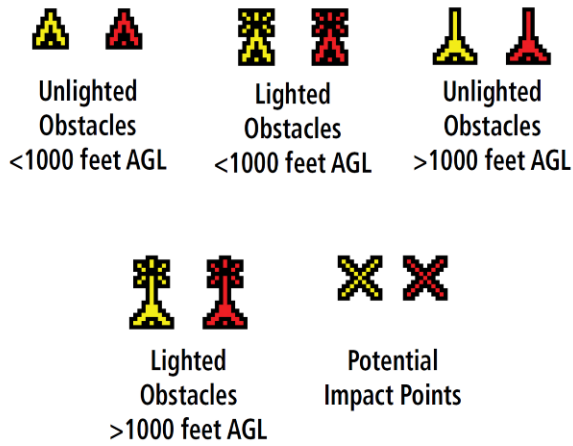


Figure 3: The TERRAIN page symbols

1.7 Meteorological Information

The *Badan Meteorologi Klimatologi dan Geofisika* (BMKG – Bureau of Meteorology, Climatology and Geophysics) installed automatic meteorological aids at Oksibil, however due to electrical problem the automatic meteorological aids had not been activated during the accident. The weather information for air traffic at Oksibil was based on air traffic controller observation and pilot report.

1.7.1 Tower Controller Observation

At 1411 LT, the meteorological condition reported by Oksibil Tower controller was wind direction 110 degrees with velocity of 9 knots, visibility the visibility 1 up to 2 km, the IWUR area, right down wind, right base of runway 11 were closed and the overhead cloud base was about 4,700 feet.

The following pictures were taken at 1507 LT by the Oksibil Tower controller showed the clouds condition.



Figure 4: The right downwind runway 11 condition at 1507 LT



Figure 5: The right base runway 11 condition at 1507 LT



Figure 6: The final runway 11 condition at 1507 LT

1.7.2 Satellite Image

The *Badan Meteorologi Klimatologi dan Geofisika* (BMKG – Bureau of Meteorology, Climatology and Geophysics) provided enhanced infrared and cloud type satellite images.

The enhanced infrared satellite images at 0500 UTC (1400 LT) up to 0525 UTC (1425 LT) with interval 5 minutes indicated that the temperature on the accident site (red circle) was from 0 up to 8°C.

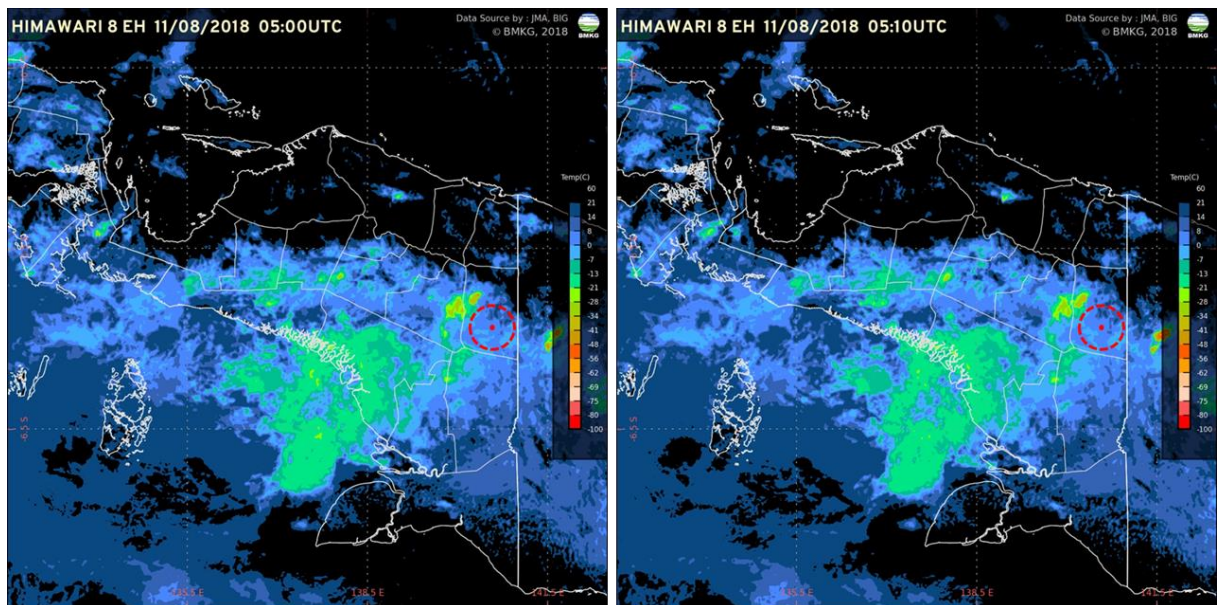


Figure 7: Enhanced infrared satellite image at 0500 UTC and 0510 UTC

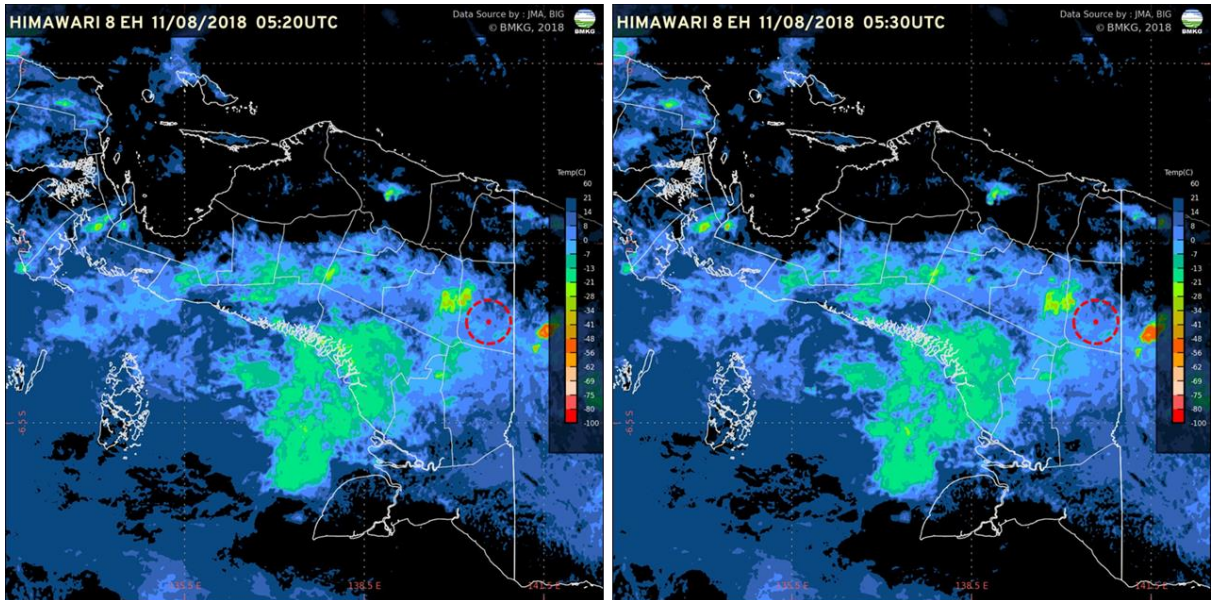


Figure 8: Enhanced infrared satellite image at 0520 UTC and 0530 UTC

The cloud type satellite images at 0500 UTC (1400 LT) and 0600 UTC (1500 LT) indicated middle cloud surrounded the accident site location.

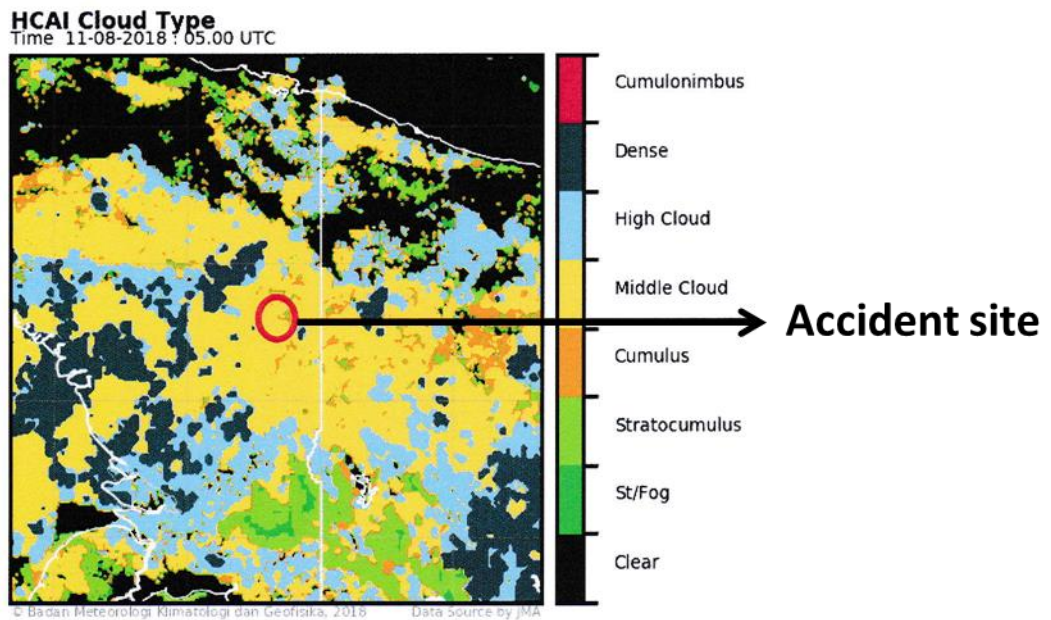


Figure 9: Cloud type satellite image at 0500 UTC (1400 LT)

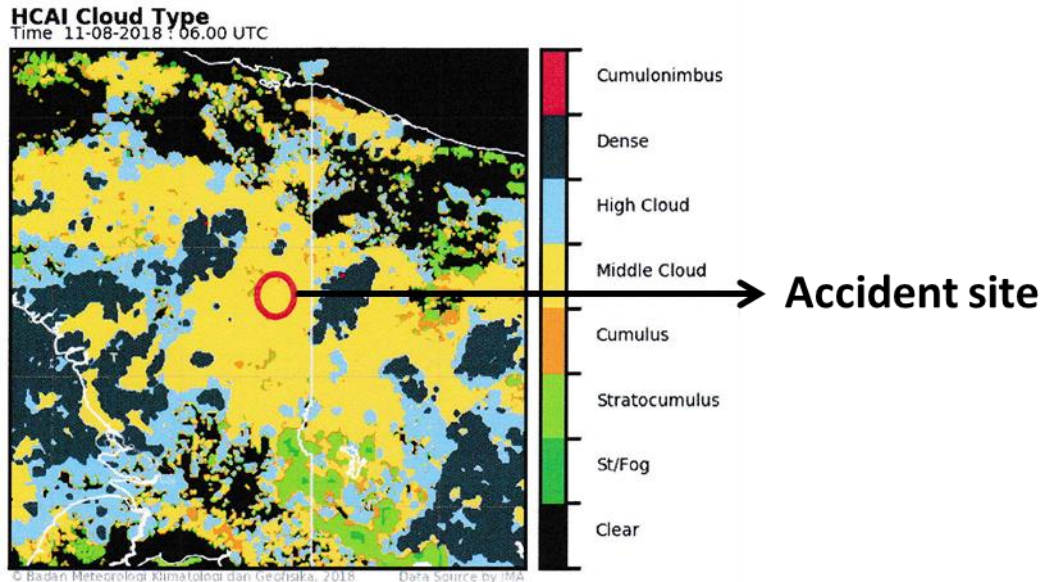



Figure 10: Cloud type satellite image at 0600 UTC (1500 LT)

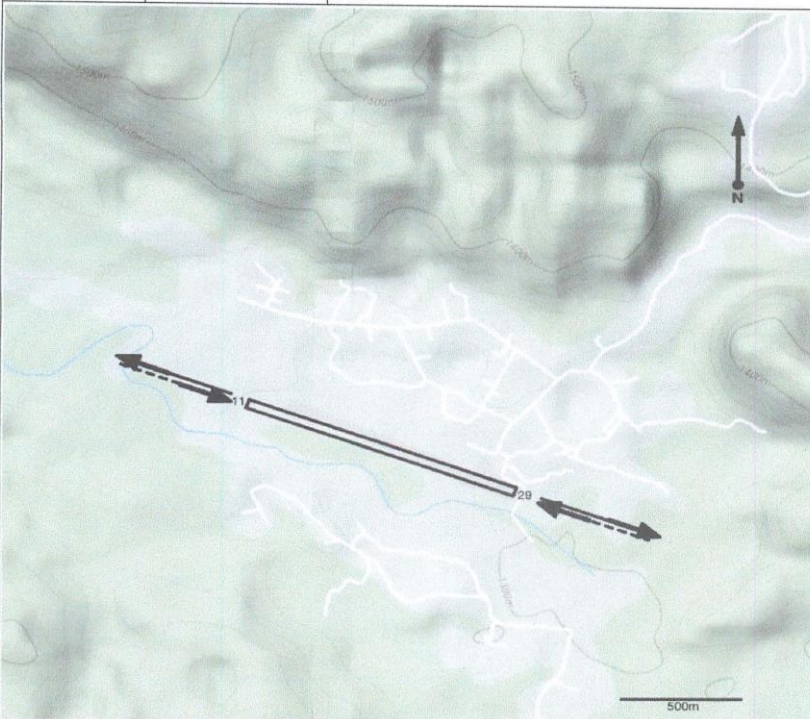

1.8 Aids to Navigation

According to the Aeronautical Information Publication (AIP) Volume IV – Aerodrome for Light Aircraft/ALA, the Oksibil was equipped with Non-Directional Beacon (NDB) identified as ZX. The NDB was unserviceable during the occurrence.

The AIP Volume IV did not include approach guidance for Oksibil.

The aircraft operator issued Route Manual Papua which contained information of Oksibil and this route manual was used for internal use.

	ROUTE MANUAL PAPUA
	CHAPTER 1. JAYAPURA AREA

Wind:	Radio: 123.00	OXSIBIL (WAJO) S 04 54.47 E 140	OXS JPA 173° - 139nm
			Landing: 11 / 29 Take-Off: —
			Elev (TDZ): 4000' Elev (TOP):
			Length: 1200m Width: 20m
			Slope: 0%
			Surface: Sealed
			MLDW: Full MTOW: Full
			Max GS: —
			
Terrain: Situated in a very large bowl. Closest Terrain to the East.			
Weather: Can be closed in the morning and afternoons. Generally has quite a bit of cloud around making approaches difficult.			
Aborted Landing: Touch and Go either direction. Aborted Take-Off: Up to 50%			
Threats/Notes: High Performance traffic operating.			

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Figure 11: The route manual of Oksibil

A visual guidance route to Oksibil published by other aircraft operator for internal use contained GPS checkpoint OKSX. The OKSX located on coordinate 04° 57.65' S; 140° 41.64' E which was about 4.9 Nm on bearing 125° from Oksibil.

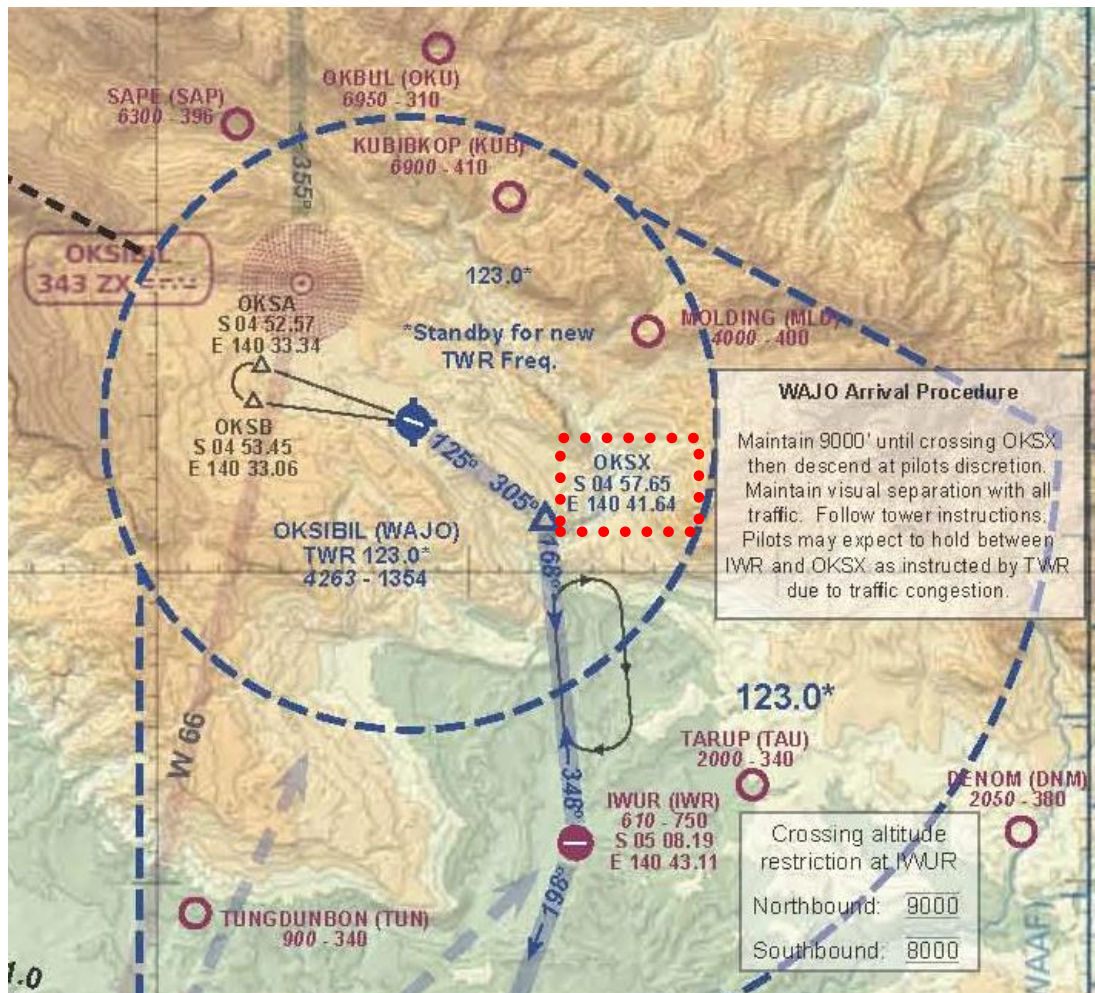


Figure 12: The OKSX location (red dot square) on visual guidance route published by other aircraft operator

1.9 Communications

The communication on Oksibil radio frequency (123.0 MHz) was recorded by ground based automatic voice recording equipment and the recorder was serviceable. The quality of the aircraft's recorded transmissions was good. The excerpt of the communication will be included in the final report.

1.10 Aerodrome Information

Airport Name	: Gunung Bintang
Airport Identification	: WAJO
Airport Operator	: Directorate General of Civil Aviation (DGCA)
Coordinate	: 04°54'26" S; 140°37'49" E
Elevation	: 4,263 feet

Runway Direction : 11 – 29 (114° – 294°)
Runway Length : 1,354 meters
Runway Width : 30 meters
Surface : Asphalt

The airport situated on a valley surrounded by mountainous area with the highest terrain up to 11,000 feet at approximately on 9.5 Nm at northwest from the airport.

1.11 Flight Recorders

The aircraft was not equipped with flight recorder and it was not required by current Indonesia regulation for this type of aircraft.

1.12 Wreckage and Impact Information

The aircraft wreckage was found at about 3.8 Nm north east of Oksibil on bearing 331° with elevation about 6,700 feet. The cockpit including the engine was separated at about 2 meters from the fuselage. The outer left wing detached and found about 17 meters from the main wreckage. A tree cut was found at about 12 meters on bearing about 150° from to the fuselage.

The wreckage distribution of the accident was as follows:



Figure 13: The wreckage distribution



Figure 14: The fuselage and left wing condition



Figure 15: The cockpit, engine and propeller condition

1.13 Medical and Pathological Information

Should any medical or pathological information will be included in the final report.

1.14 Fire

There was no evidence of fire in-flight or after the aircraft impacted terrain.

1.15 Survival Aspects

The PK-HVQ pilot advised the Oksibil Tower controller that the estimate time arrival at Oksibil would be 1420 LT. At 1416 LT, the PK-HVQ pilot advised the Oksibil Tower controller that the aircraft was overhead Oksibil at altitude of 7,000 feet and was instructed to report when the runway was in sight.

After three minutes from the last communication, the Oksibil Tower controller called the PK-HVQ pilot with call sign PK-HVX twice asking the aircraft position and no reply from the pilot. Afterwards, the PK-FSG pilot advised the Oksibil Tower controller that the call sign was PK-HVQ instead of PK-HVX.

The Oksibil Tower controller recalled the PK-HVQ pilot several times and no reply from the pilot. Thereafter, the Oksibil Tower controller asked the PK-FSG pilot to call the PK-HVQ pilot on TIBA frequency (122.7) and still no reply from the pilot. The PK-FSG pilot then advised the Dimonim Air officer at Tanah Merah regarding the lost contact of the PK-HVQ aircraft. The officer then called the Dimonim Air operation center in Jakarta to check the aircraft position from the Spidertracks. The last aircraft position was on coordinate 4°51'57.71"S; 140°35'51.99"E, which was about 3.5 Nm from Oksibil on bearing 321°.

At 1433 LT, the Oksibil Tower controller requested pilot of another arrival aircraft, a Cessna 208B registered PK-RSC from Tanah Merah to Oksibil whether monitored PK-HVQ and was responded that there was no visual contact or communication from PK-HVQ pilot.

At 1510 LT, The Oksibil Tower controller advised the occurrence to the Aeronautical Reporting Office of Sentani International Airport and National Search and Rescue Agency. The Oksibil Tower controller then asked the PK-HVQ flight to the nearby airport and airstrip.

The search and rescue operation was initiated consisted of the National Search and Rescue Agency, police, army and local citizen. The ground search of the PK-HVQ aircraft was conducted to the mountainous area on north direction from Oksibil.

At 1511 LT, the AirNav Indonesia branch office Sentani declared ALERFA and at 1543 LT, the DETRESFA was declared.

At 1611 LT, a Cessna C208B aircraft registered PK-HVC operated by Dimonim Air departed from Sentani to conduct search mission in Oksibil. At 1730 LT, the PK-HVC pilot advised the Oksibil Tower controller that the pilot did not get Emergency Locator Transmitter (ELT) signal from PK-HVQ aircraft and unable to search visually due to cloud condition. The pilot then decided to stop the search activity and flew to Tanah Merah.

On 12 August 2018, at 0534 LT, the PK-HVC aircraft departed from Tanah Merah to Oksibil continuing the search mission. At 0615 LT, the PK-HVC pilot informed the Oksibil Tower controller that the pilot had visual contact with the PK-HVQ wreckage on coordinate of 04° 51.07" S 140° 35.94" E.

At 0812 LT, the ground search teams arrived on accident site and found eight occupants were fatally injured and one occupant was seriously injured. The six fatally injured occupants were found outside the aircraft wreckage while the rest were found inside the aircraft wreckage including the survived passenger.

The occupants evacuated to the local hospital in Oksibil and transported to hospital in Jayapura. The injured passenger suffered injury of broken arm and spleen injury received further treatment.

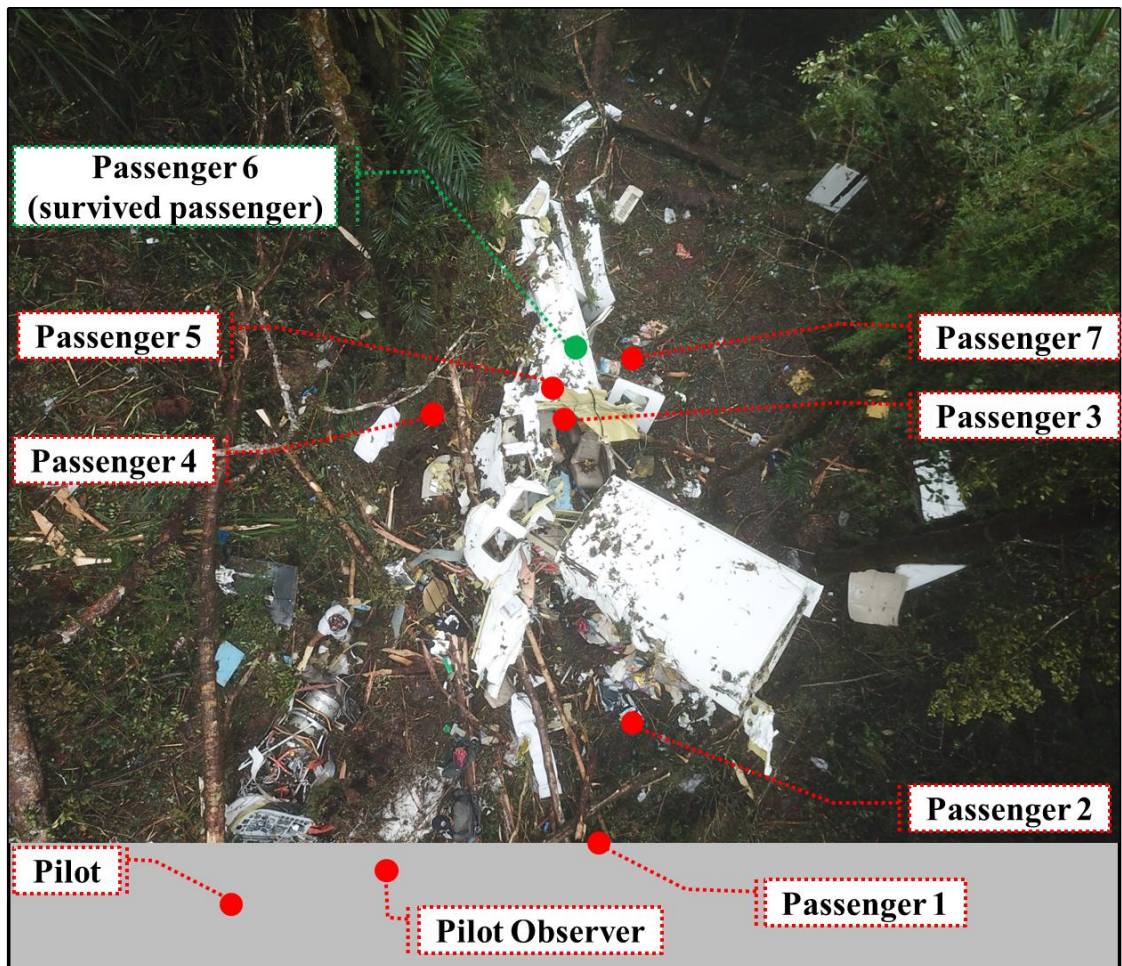


Figure 16: The occupant location

1.16 Tests and Research

Should any test and research information will be included in the final report.

1.17 Organizational and Management Information

1.17.1 Aircraft Operator

Aircraft Owner and Operator : PT. Marta Buana Abadi (Dimonim Air)
Address : Jalan Cimandiri, No. 6, Cikini, Jakarta Pusat,
Republic of Indonesia

The Dimonim Air had valid Air Operator Certificate (AOC) number 135-049 which authorized to conduct air transportation carrying passengers and cargo in non-scheduled operation within and outside Indonesia for aircraft operations under Civil Aviation Safety Regulation (CASR) Part 135. The Dimonim Air conducted unscheduled passenger and cargo flight on Papua and Bali area.

The Dimonim Air operated two Eurocopter AS 350B2 helicopter, one Eurocopter AS 350BA helicopter, one Kamov Ka-32A helicopter, eight Cessna 208B aircraft, one DHC 6-300 aircraft and one PAC 750XL (the accident aircraft).

Flight Following

The Dimonim Air utilizes flight following system provided by Spider Tracks Limited with type/model Spider 7 which manufactured in New Zealand. The tracking and flight data from the aircraft transmitted to the Spidertracks website and monitored by Dimonim Air staff in Jakarta.

The aircraft operator subscribed the Spidertracks flight following system for 2 minutes interval data reporting for each fleet, including the PK-HVQ aircraft. The reporting parameters in the tracking system contained several data including time, coordinate, aircraft altitude, speed and bearing. The tracking system begins to send position report when the device is powered in open area.

The investigation downloaded the reporting Spidertracks data of the accident flights from Tanah Merah to Oksibil.

1.17.2 Air Traffic Service Provider

The Air Traffic Control (ATC) service in Oksibil was provided by Perum LPPNPI (AirNav Indonesia) branch office Oksibil, the ATC service was provided in Oksibil aerodrome traffic zone (ATZ) which was within radius of 10 Nm centered at ZX NDB with vertical limit from surface up to 4,000 feet above the airport elevation. The airspace classification on the Oksibil ATZ was class C airspace.

1.17.3 Visual Flight Rules Regulations

According to the Civil Aviation Safety Regulation Part 91 subchapter 91.155, the basic Visual Flight Rules (VFR) weather minimum was as follows:

- No person may operate an aircraft under Visual Flight Rule (VFR) when the flight visibility is less, or at a distance from clouds that is less, than that prescribed for the corresponding altitude and class of airspace in the following table:

Airspace	Flight Visibility	Distance from Clouds
Class C	8 km above 10,000 feet	1,000 feet above
	5 km below 10,000 feet	1,000 feet above
		1,500 meters horizontal

- No person may operate an aircraft beneath the ceiling under VFR within the lateral boundaries of controlled airspace designated to the surface for an airport when the ceiling is less than 1,000 feet.
- No person may take off or land an aircraft, or enter the traffic pattern of an airport, under VFR, within the lateral boundaries of the surface areas of Class C airspace designated for an airport unless ground visibility at that airport is at least 3 statute miles (4.8 km).

According to the CASR Part 135, subchapter 135.615 for VFR takeoff minima describes no person shall commence a VFR flight unless the latest available ceiling and visibility reports or forecasts indicate that the weather conditions along the route to be flown and at the destination airport indicated the flight could be conducted under VFR.

1.18 Additional Information

Investigation involved Transport Accident Investigation Commission of New Zealand that assigned accredited representative according to the ICAO Annex 13.

The investigation is continuing and KNKT plans to complete the investigation within 12 months since the day of the occurrence. Should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1.19 Useful or Effective Investigation Techniques

The investigation was conducted in accordance with the KNKT approved policies and procedures, and in accordance with the standards and recommended practices of Annex 13 to the Chicago Convention.

2 FINDINGS⁹

According to factual information during the investigation, the KNKT identified findings as follows:

1. The pilot and air traffic controller held valid license and medical certificate.
2. The aircraft had valid Certificate of Airworthiness (C of A) and Certificate of Registration (C of R). Prior to departure, there was no report or record of aircraft system malfunction.
3. The aircraft was fitted with two Global Positioning System (GPS) Garmin GNS 430. The GPS has communication capability and provides navigation data including terrain information.
4. The aircraft was not equipped with flight recorder and it was not required by current Indonesia regulation for this type of aircraft.
5. The flights of the day scheduled for the aircraft and the pilot were Tanah Merah – Oksibil – Tanah Merah – Manggelum – Tanah Merah – Bomakia – Tanah Merah.
6. The weather information from Oksibil indicated no improvement on weather condition and the pilot decided to change the flight schedule and cancelled the flight Tanah Merah to Oksibil.
7. The weather information for air traffic at Oksibil was based on air traffic controller observation and pilot report.
8. The enhanced infrared satellite images at 0500 UTC (1400 LT) up to 0525 UTC (1425 LT) with interval 5 minutes indicated that the temperature on the accident site (red circle) was from 0 up to 8°C. The cloud type satellite images at 1400 LT and 1500 LT indicated middle cloud surrounded the accident site location.
9. The flights from Tanah Merah – Manggelum – Tanah Merah – Bomakia – Tanah Merah were uneventful and the aircraft landed safely in Tanah Merah. The flights were conducted as single pilot operation with one training pilot who seat on the right acted as observer.
10. The pilot monitored from the radio frequency that there were two aircraft flew from Tanah Merah to Oksibil and returned.
11. After landed the pilot asked the Dimonim Air ground staff at Tanah Merah of the weather information from Oksibil and was advised that the weather still below the requirement of VMC. The pilot decided to replace the training pilot to the other pilot as observer who had experienced to fly to Oksibil.

⁹ Findings are statements of all significant conditions, events or circumstances in the accident sequence. The findings are significant steps in the accident sequence, but they are not always causal, or indicate deficiencies. Some findings point out the conditions that pre-existed the accident sequence, but they are usually essential to the understanding of the occurrence, usually in chronological order.

12. The flight plan for PK-HVQ flight route Tanah Merah to Oksibil with estimate time departure of 1320 LT was submitted by Tanah Merah ACO to Oksibil ACO. The flight plan stated that the flight rule would be conducted under Visual Flight Rules.
13. At 1342 LT, on daylight condition the PK-HVQ aircraft departed from Tanah Merah to Oksibil with intended cruising altitude of 7,000 feet, on board the aircraft were one pilot, one observer pilot and 7 passengers and 386 kg of fuel which was sufficient for about 2 hours of flight time. According to the passenger and cargo manifest, the total weight of passenger and the baggage was 473 kg.
14. On initial contact with Oksibil Tower controller, the PK-HVQ pilot was advised of the latest meteorological condition including the visibility 1 up to 2 km, and the clouds condition of the IWUR area, right down wind, right base of runway 11 were closed by clouds and the overhead cloud base was about 4,700 feet above, mean sea level.
15. At 1414 LT, the PK-HVQ pilot used call sign PK-HVX, called the Oksibil Tower controller and reported that the aircraft position was over GPS checkpoint OKSX. This GPS checkpoint was not mentioned in the Route Manual Papua for Oksibil published by Dimonim Air.
16. At 1417 LT, the PK-HVQ pilot reported to the Oksibil Tower controller that the aircraft was overhead Oksibil at altitude of 7,000 feet. Thereafter the Oksibil Tower controller instructed the pilot to continue the flight to final runway 11 and to report when the runway has in sight.
17. At 1419 LT, the flight following system of the Dimonim Air recorded the aircraft position was 3.1 Nm on bearing 321° from Oksibil, the altitude was 6,713 feet with ground speed 100 knots and the aircraft bearing was 356°. A few seconds later, the Oksibil Tower controller called the PK-HVQ pilot with call sign PK-HVX and asked the aircraft position several times with no answer.
18. At 1421 LT, the PK-FSG pilot who monitored the Oksibil Tower frequency advised the Oksibil Tower controller that the right call sign for the arriving aircraft was PK-HVQ instead of PK-HVX. The Oksibil Tower controller then called the PK-HVQ pilot several times and asked the PK-FSG pilot and PK-RSC pilot to call the PK-HVQ pilot and there was no answer.
19. At 1510 LT, the Oksibil Tower controller advised the occurrence to the ACO of Sentani and National Search and Rescue Agency. The Oksibil Tower controller then asked to the nearby airstrips and there was no information of the PK-HVQ flight.
20. On 12 August 2018, at 0615 LT, the PK-HVC pilot informed the Oksibil Tower controller that the pilot had visual contact with the PK-HVQ wreckage on coordinate of 04° 51.07" S 140° 35.94" E.
21. At 0812 LT, the ground search teams arrived on accident site and found eight occupants were fatally injured and one occupant was seriously injured. The six fatally injured occupants were found outside the aircraft wreckage while the rest were found inside the aircraft wreckage including the survived passenger.

22. The Oksibil was equipped with Non-Directional Beacon (NDB) identified as ZX and the NDB was unserviceable during the occurrence.
23. The AIP Volume IV did not include approach guidance for Oksibil. The aircraft operator issued Route Manual Papua which contained information of Oksibil and this route manual was used for internal use.
24. The Route Manual Papua for Oksibil did not mention GPS checkpoint OKSX. A visual guidance route to Oksibil published by other aircraft operator for internal use contained GPS checkpoint OKSX that located on coordinate $04^{\circ} 57.65' S$; $140^{\circ} 41.64' E$ which was about 4.9 Nm on bearing 125° from Oksibil.

3 SAFETY ACTION

At the time of issuing this Preliminary Report, the KNKT had not been informed of safety actions taken by involved parties resulting from this occurrence.

4 SAFETY RECOMMENDATIONS

4.1 Dimonim Air

- **04.O-2018-32.01**

The weather information from Oksibil indicated no improvement on weather condition and the flight from Tanah Merah to Oksibil was canceled. The pilot conducted flight to other scheduled routes. During those flights, the pilot monitored from the radio frequency that there were two aircraft flew from Tanah Merah to Oksibil and returned.

After landed in Tanah Merah, the pilot asked the ground staff of the weather information from Oksibil and was advised that the weather still below the requirement of VFR. The PK-HVQ departed to Oksibil under Visual Flight Rules.

On initial contact with Oksibil Tower controller, the PK-HVQ pilot was advised of the latest meteorological condition including the visibility 1 up to 2 km, and the clouds base of over the airport and surrounding area was about 4,700 feet above mean sea level or about 700 feet above ground level.

According to the CASR Part 135, subchapter 135.615 for VFR takeoff minima describes no person shall commence a VFR flight unless the latest available ceiling and visibility reports or forecasts indicate that the weather conditions along the route to be flown and at the destination airport indicated the flight could be conducted under VFR. According to the CASR Part 91, no person may enter traffic pattern of an airport under VFR, within the lateral boundaries of the surface areas of Class C airspace designated for an airport unless ground visibility at that airport is at least 3 statute miles (4.8 km).

Flying under Visual Flight Rules in weather condition below VMC could make the pilot unable to see terrain or obstacle on the surrounding area.

KNKT recommends the Dimonim Air to ensure all flights are conducted at or above the required weather minima.

4.2 Directorate General of Civil Aviation

- **04.R-2018-32.02**

In 2017, KNKT issued safety recommendation number 04.R-2015-17.6 that recommended the Directorate General of Civil Aviation (DGCA) to publish the visual route guidance for airport without instrument approach procedure. The recommendation was responded that the DGCA offered aircraft operator to submit draft visual guidance to DGCA and AirNav Indonesia for further discussion. The same recommendation has been issued to the DGCA in 10 July 2018.

During this occurrence, the AIP Volume IV did not include approach guidance for Oksibil. The Dimonim Air issued Route Manual Papua which contained information of Oksibil and this route manual was used for internal use.

While approaching Oksibil, the PK-HVQ pilot advised the Oksibil Tower controller that the aircraft position was over GPS checkpoint OKSX. This GPS checkpoint was not mentioned in the Route Manual Papua for Oksibil published by the Dimonim Air.

Several aircraft operator issued route guidance for internal use that contained different check point location. This may confuse air traffic controller and pilot from other aircraft operator.

KNKT recommends the DGCA to ensure that the safety recommendation number 04.R-2015-17.6 which published in 2017 and 04.R-2018-24.3 in 2018 to publish the visual route guidance for airport without instrument approach procedure.

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