

# FLIGHT DATA SHEET

FLIGHT: \_\_\_\_\_  
 yyyy-mm-dd [A/B/C][1/2]  
 A,B... = survey effort of day  
 1,2 = aircraft in survey  
 \*fill in when GPS is downloaded\*

Aircraft: \_\_\_\_\_ N \_\_\_\_\_  
 FAA# \_\_\_\_\_  
 Survey Type: Independent Inline  
 Aircraft Position: 1/1 1/2 2/2  
 Target Survey Altitude: \_\_\_\_\_ feet  
 Target Ground Speed: \_\_\_\_\_ knots

Departure Time: \_\_\_\_\_  
 Arrival Time: \_\_\_\_\_  
 Flight Summary: \_\_\_\_\_

Entered \_\_\_\_\_ Error Checked \_\_\_\_\_

PAGE \_\_\_\_\_ OF \_\_\_\_\_

Crew	Role	Data
_____	Pilot Right	
_____	Pilot Left	
_____	Mechanic	○
_____	RA RF LA LF	○
_____	RA RF LA LF	○
_____	RA RF LA LF	○

Time	Flight Mode	Observation	Count	Activity	Before	After	Ice Stage	Form	Observation Conditions
4:00:00	Fly	Polar Bear	1st	Inactive	OO		Open Water	New Brash	Good/Fair/Poor Mist
	Land	PB Track [old/new]	Full	Walk	OO		Nilas	Pancake	Glare? ○ Drizzle
	Circle	Seal	Full	Run	OO		Young	Cake	Fog? ○ Rain
	Hover	Walrus		Eat	OO		First-Year	Belt Strip	Snow/Sleet
	Transect	Other		Swim	OO		Multi-Year	Floe: [S M L V G]	
Transect id: _____		Zone: 1 2 3 4 5 6 7 _____°					____%Ice cover	____%Snow cover	Max. Zone Visible: R 1 2 3 4 5 6 7 L 1 2 3 4 5 6 7 _____% cloud C

	Fly	Polar Bear	1st	Inactive	OO		Open Water	New Brash	Good/Fair/Poor Mist
	Land	PB Track [old/new]	Full	Walk	OO		Nilas	Pancake	Glare? ○ Drizzle
	Circle	Seal	Full	Run	OO		Young	Cake	Fog? ○ Rain
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Time	Flight Mode	Observation	Count	Activity	Before	After	Ice Stage	Form	Observation Conditions
24:00:00									Visibility / Wx / Precip
	Fly	Polar Bear	Ist	Inactive	OO		Open Water	New Brash	Good/Fair/Poor Mist
	Land	PB Track [old/new]		Walk	OO		Nilas	Pancake	Glare? O Drizzle
	Circle	Seal	Full	Run	OO		Young	Cake	Fog? O Rain
	Hover	Walrus		Eat	OO		First-Year	Belt Strip	Snow/Sleet
	Transect	Other		Swim	OO		Multi-Year	Floe: [S M L V G]	
Transect id: _____		Zone: 1 2 3 4 5 6 7 _____ °					%Ice cover _____	%Snow cover _____	Max. Zone Visible: R 1 2 3 4 5 6 7 L 1 2 3 4 5 6 7 _____ % cloud
		1 <sup>st</sup> Observer (seat) _____							

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	Circle	Seal	Full	Run	OO		Young	Cake	Fog? O Rain
	Hover	Walrus		Eat	OO		First-Year	Belt Strip	Snow/Sleet
	Transect	Other		Swim	OO		Multi-Year	Floe: [S M L V G]	
Transect id: _____		Zone: 1 2 3 4 5 6 7 _____ °					%Ice cover _____	%Snow cover _____	Max. Zone Visible: R 1 2 3 4 5 6 7 L 1 2 3 4 5 6 7 _____ % cloud
		1 <sup>st</sup> Observer (seat) _____							

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		1 <sup>st</sup> Observer (seat) _____							

## SURVEY CODES

FLIGHT INFORMATION	SIGHTING INFORMATION		OBSERVER CONDITIONS
<p><b>Flight ID</b> Assign when the GPS tracklog is downloaded, using the format:</p> <p>yyyy-mm-dd-[A/B/C]-[1/2] where A, B, C ... = sequential survey effort of day 1 or 2 = aircraft position in survey.</p> <p><b>Aircraft</b> Note model of aircraft and FAA number.</p> <p><b>Departure and Arrival Time</b> Time of sighting in 24 hour clock (hh:mm:ss) synchronized with GPS in GMT -8 (summer), -9 (daylight savings time).</p> <p><b>Survey Type</b> Independent = one aircraft flying an independent survey effort In-line = two aircraft flying survey effort in line.</p> <p><b>Aircraft Position</b> 1/1 = aircraft flying independent survey 1/2 = first aircraft flying in-line survey 2/2 = second aircraft flying in-line survey.</p> <p><b>Crew</b> Last name of each participant, their role, and who maintained the datasheet</p> <p>Pilot (right and/or left) Mechanic LF = Left Forward Observer LA = Left Aft Observer RF = Right Forward Observer RA = Right Aft Observer.</p> <p>Check Data next to data recorder's name.</p>	<p><b>Time</b> Time of sighting in 24 hour clock (hh:mm:ss) synchronized with GPS in GMT -8 (summer) or -9 (daylight savings time).</p> <p><b>Flight Mode</b> Circle each change in flight mode:</p> <p>Fly = aircraft in flight, not on survey Land = aircraft lands on ground, ice or ship Circle = aircraft leaves transect line to circle polar bear group and verify count Hover = aircraft ceases forward movement while in the air Transect = aircraft begins survey transect (record transect number).</p> <p><b>Observation</b> Circle observation type. Note whether polar bears tracks are old or new. Note species as follows:</p> <p>ARFO = Arctic Fox BESE = Bearded Seal BEWH = Beluga Whale BOWH = Bowhead Whale GRWH = Gray Whale RBSE = Ribbon Seal RISE = Ringed Seal SPSE = Spotted Seal UNWH = Unidentified Whale</p> <p>Other = note kill sites and additional observations.</p> <p><b>Initial and Full Counts</b> Note number(s) of polar bears initially observed (1<sup>st</sup>) and number(s) observed at completion of circle (Full).</p> <p><b>Zone/Angle</b> Note zone in which polar bear(s) was observed. Record angle of sighting.</p>	<p><b>Activity</b> Check polar bear activity when first sighted and when circling of bear is completed.</p> <p><b>1<sup>st</sup> Observer</b> Note role of person who first made the observation. If only observed by video camera, make a new entry at the end of the flight datasheet and note "Video Camera" as the observer.</p> <p><b>Notes</b> Add additional information in the space below each event entry.</p> <p><b>ICE CONDITIONS</b></p> <p><b>Ice Stages and Forms</b> Circle stages and forms that are present (see attached definitions).</p> <p><b>Ice and Snow Cover</b> Record to nearest 10%.</p>	<p><b>Visibility</b> Note overall visibility as:</p> <p><b>Good</b> = 100% of survey area from aircraft to horizon is completely visible to both observers with no interference from glare, fog, precipitation, etc. <b>Fair</b> = 75-100% " " <b>Poor</b> = 50-75% " "</p> <p><b>Glare and Fog</b> Check if present.</p> <p><b>Precipitation</b> Note as follows:</p> <p><b>Mist</b> = water floating in the atmosphere as a fine spray <b>Drizzle</b> = water falling lightly in the atmosphere in small droplets <b>Rain</b> = water falling steadily in the atmosphere <b>Snow/sleet</b> = large droplets of precipitation in the form of crystals formed from freezing water.</p> <p><b>Zone</b> Note maximum zone of visibility for both right and left observers.</p>

## DEFINITIONS OF ICE STAGES

Modified from *Observer's Guide to Sea Ice*, prepared by the University of Alaska Anchorage, School of Engineering for the National Ocean and Atmospheric Administration. For copies of this document, send e-mail request to [library@hazmat.noaa.gov](mailto:library@hazmat.noaa.gov) or fax your request to 206 526-4442.

1. **New:** ice in one of the following stages of formation:
  - a) **Frazil:** separate fine needles or plates suspended in water
  - b) **Grease:** a thin soapy-looking surface layer of coagulated frazil ice
  - c) **Slush:** snow mixed with water in a viscous surface layer
  - d) **Shuga:** an accumulation of spongy white lumps
2. **Nilas:** a thin elastic crust of ice, less than 10 cm (4 in) thick; easily bends on waves, often has striped or chevron appearance
3. **Young:** Ice 10-30 cm (4-12 in) thick in one of the following stages:
  - a) **Gray:** young ice 10-15 cm (4-6 in) thick; less elastic than Nilas; breaks on swell and rafts (one layer over another) under pressure
  - b) **Gray-White:** young ice 15-30 cm (6-12 in) thick, that buckles to form ridges on its edges from pressure or collisions
4. **First-year ice:** sea ice that, in uniform level areas without ridges or other deformations, is 30 cm - 1.2 m thick (12 in - 4 ft)
  - a) **First-year thin:** Sea ice that, in uniform level areas without ridges or other deformations is 30-70 cm (12-27 in) thick
  - b) **First-year medium:** sea ice 70-120 cm (27-48 in) thick
  - c) **First-year thick:** sea ice over 1.2 m (4 ft) thick
5. **Old or multi-year:** sea ice 3 m (10 ft) thick or more that has survived at least one melting season; characterized by undulating, weathered ridges and a well-defined melt water drainage pattern.

## DEFINITIONS OF ICE FORMS

1. **New:** small thin newly formed dinner plate-sized pieces
2. **Brash:** broken pieces less than 2 m (6 ft) across
3. **Pancake:** rounded floes 30 cm - 3 m (1-10 ft) across with ridged rims
4. **Cake:** level piece 3-20 m (6-65 ft) across
5. **Floe Ice:** level pieces ranging in size from 20 m to > 10 km
  - a) **Small floe:** level piece 20-100 m (65-328 ft.) across
  - b) **Medium floe:** level continuous piece 100-500 m (328-1640 ft) across
  - c) **Big floe:** level continuous piece 500 m - 2 km (1/3-1 mi) across
  - d) **Vast floe:** level continuous piece 2-10 km (1-6 mi) across
  - e) **Giant floe:** level continuous piece greater than 10 km (6 mi) across
6. **Strip:** a linear accumulation of sea ice less than 1 km (0.6 mi) wide
7. **Belt:** a linear accumulation of sea ice from 1 km to over 100 km (0.6-60 mi) wide
8. **Beach Ice or Stamukhas:** irregular, sediment-laden blocks that are grounded on tidelands, repeatedly submerged, and floated free by spring tides
9. **Fast Ice:** ice formed and remaining attached to shore