

ENSM Le Havre	S11 – TD NAVIGATION	VI.1– 09/19
A. Charbonnel	TD NAVIGATION EN CONDITIONS PARTICULIÈRES	1/6

PRÉSENTATION DU TD

Contexte général

L'objectif de ce TD est double. D'une part il doit vous permettre d'exploiter les connaissances acquises durant votre cursus et de les réinvestir sur un cas pratique de navigation dans les glaces sur simulateur et sur des cas théoriques de navigations à l'approche d'un cyclone.

D'autre part de vous conduire à organiser et répartir le travail au sein d'une équipe que ce soit dans la phase de préparation que dans la phase de conduite de la navigation afin que la mission soit remplie dans les délais impartis.

Ce TD sera réalisé et évalué par groupe / équipe passerelle/ Néanmoins des notes différenciées au sein d'une même équipe pourront être attribuées pour prendre en compte la qualité relative du travail de chacun.

Organisation

Ce TD comporte quatre phases :

1- la préparation de traversée en milieu polaire (TD 1 et travail maison)

Vous devez réaliser une préparation de traversée ;

Ce travail est à réaliser durant la 1ere séance de TD et en travail personnel

Attendus avant le début de la deuxième séance :

- une analyse des documents météo sur les conditions de navigation et risques de givrage éventuelle (version PDF ou papier).

- un dossier de préparation de traversée (version PDF ou version papier).

- le fichier gpx de votre route.

- le fichier vidéo de votre briefing oral des points importants avant le début de la traversée que vous aurez enregistré.

2- La présentation de vos briefings (TD2) et débriefing

Présentation orale des briefings préparés et enregistrés - debriefing

3- La conduite d'une partie de cette traversée sur simulateur

Pendant qu'une partie de la classe réalise un travail sur la navigation dans les cyclones et dans les glaces en autonomie pendant 1h30 (QCM), l'autre partie conduit sur simulateur sa navigation dans les glaces. Puis inversement

4- Travail en autonomie sur la navigation dans les cyclones et la réglementation polaire

Ce travail est réalisé formalisé par des questions de types questions ouvertes ou questions à choix multiples

Évaluation

L'ensemble de votre travail est évalué ; préparation de traversée, briefing, conduite de la navigation et questionnaire.

Planning

	M2B
Séance 1 : Préparation de traversée en milieu polaire	23/09
Travail personnel : Préparation de traversée => dossier de préparation de traversée. => fichier gpx => briefing vidéo	À réaliser lors de la 1ere séance et en travail personnel à la maison A rendre avant le 05/11 – 12:00
Séance 2 : Debriefing sur la préparation de traversée	08/11
Séance 3 : Conduite de la navigation en milieu polaire	15/11
Séance 4 : Navigation à l'approche des cyclones	15/11

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PRELIMINARY INFORMATION ON THE RV SIKULIAQ

You just have been recruited to work on the Research Vessel SIKULIAQ for her next mission that will begin in January 2020.

RV *Sikuliaq* is an [American research vessel](#) owned by the [National Science Foundation](#) and operated by the [University of Alaska Fairbanks College of Fisheries and Ocean Sciences](#).

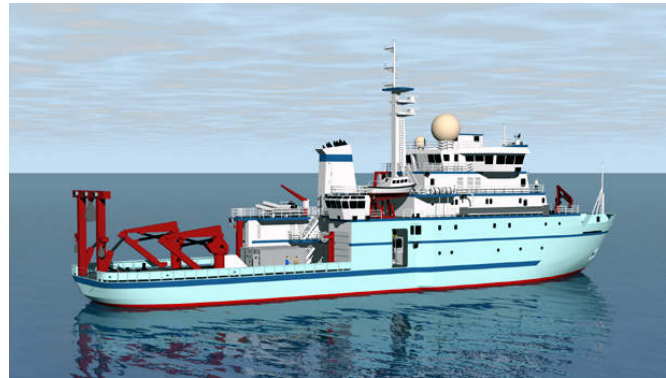


Illustration 1: RV SIKULIAQ

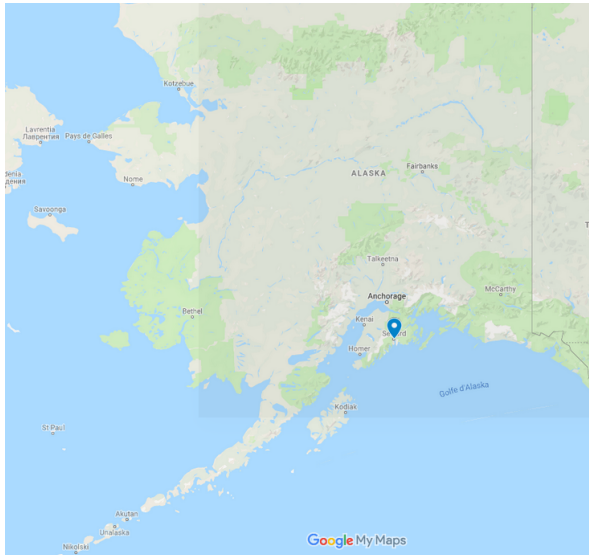


Illustration 2: Seward, home-port for RV SIKULIAQ

Built in 2014, *Sikuliaq*, is home-ported in [Seward, Alaska](#). Missions and capabilities
Sikuliaq allows up to 26 scientists and students to conduct multi-disciplinary studies in high latitude open seas, near-shore regions and single-year sea ice. The major research opportunities include the effect of [climate change](#) and increased human use of Arctic regions on various issues such as ocean circulation and ecosystem dynamics.

One of the most advanced research vessels ever built, *Sikuliaq* has extensive scientific facilities. In addition to 209 m² of built-in laboratories, she can accommodate

two to four 20-foot scientific containers on the 405 m² aft deck.

Characteristics

Name:	Sikuliaq	Type:	<u>Research vessel</u>
Namesake:	<u>Iñupiaq</u> for "young sea ice"	Gross Tonnage:	9 465 t
Owner:	National Science Foundation	Dead weight:	5 500t
Operator:	University of Alaska Fairbanks School of Fisheries and Ocean Sciences	Length: over All	108,70 m
Port of registry:	Seward, Alaska	Beam:	23,00 m
Ordered:	5 February 2010	Operational draft:	6,30 m
Builder:	Marinette Marine Corporation, Marinette, Wisconsin	Max draft:	7,8m
Cost:	US\$200 million	Ice class:	<u>Polar Class 5</u>
Yard number:	650	Installed power:	1x main propeller 2 bow tunnel (1500 kW) 2 aft azimuth (stb and Port 3 675 kW)
Laid down:	11 April 2011	Propulsion:	3,429 GT / 1,028 NT / 1,556 DWT
Launched:	13 October 2012	Speed:	14.knots 2 knots in 2.5 feet (0.76 m) ice
Completed:	6 June 2014	Range:	18,000 nautical miles (33,000 km; 21,000 mi) at 10 knots (19 km/h; 12 mph)
Identification:	IMO : 9578945 Call sign: WDG7520 MMSI : 338417000	Endurance:	45 days
Status:	In service	Capacity:	24 science berths 2–4 20-foot science vans
		Accommodation:	20 (+2) for crew 26 for scientific staff

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MISSION

RV SIKULIAK is actually involved in a six month mission in arctic sea and her present position today is about 75° 10,5'N / 142° 23,5'W.

You will part of the next mission that will begin in January 2020..

This new research mission will be shorter and will lead you from Kotzebue port (66° 49,2'N / 162° 25,7W) to Valdez Port (61° 05' N /146° 25'W).

Mission director's instructions

The mission director give you the following informations about the navigation area for the mission :

- Boarding of the scientific staff at Kotzebue (66° 49,2'N / 162° 25,7W) ;
- Bering Strait Passage ;
- passage between Unimak island and Unalaska island,
- navigation along the coast ,
- passage between Katmai National Park and Kodiak Island ;
- mooring in William Sound Sound for tree days
- Landing at Valdez port (61° 05' N /146° 25'W).

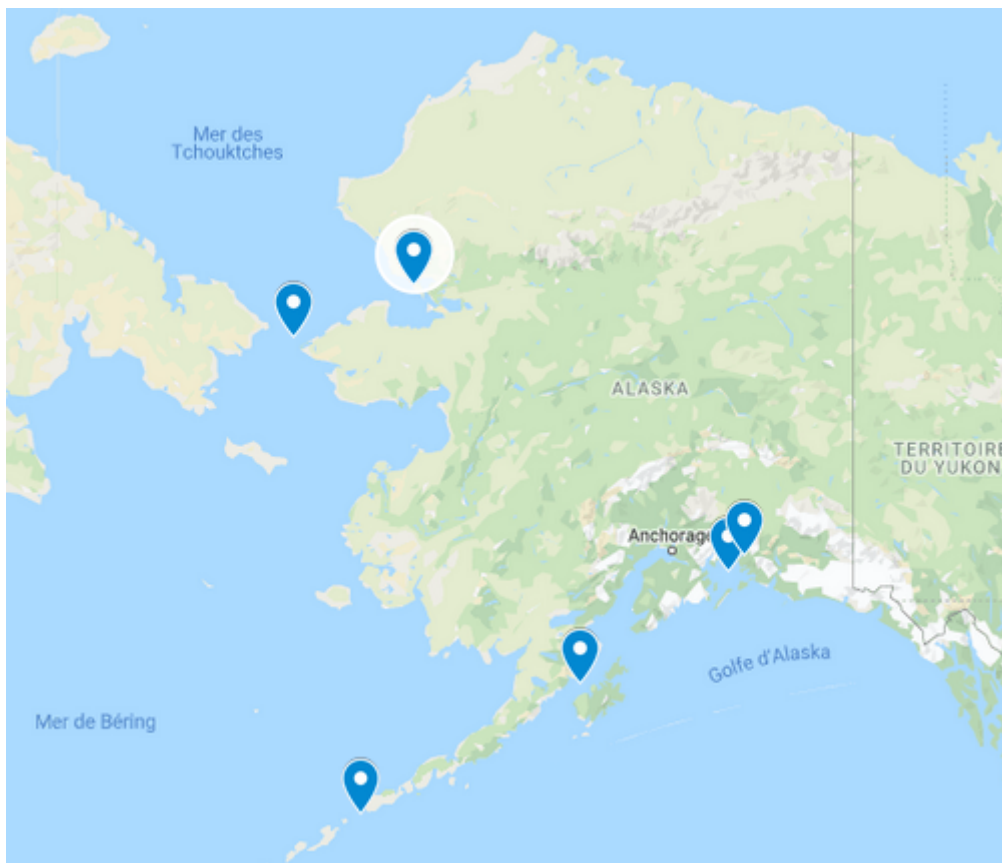


Illustration 3: Mission RV Sikuliaq- jan. 2020 -

https://drive.google.com/open?id=12c1Igg8yiIE5DRXHk9HTLTy8zMr2_aFU&usp=sharing

With this informations, you have to make the passage planning for this mission.

As you are a junior officer, a senior officer (the instructor) can help you if needed and check your work from time to time (during the session or by e-mail).

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Captain's instructions

The captain want you begin the passage planning for the mission and prepare a briefinh
He give you a check list (see instructor for it)

He want that, at minimum, you do the following parts of passage planning.

1. List general informations on the passage planning

- List the charts and nautical publications to be used (english, french, american ?) ;
- Define where the ship could face ice on the sea during the mission ;
- Define the restrictions in navigation due to the wildlife
- List the specific dangers and recommandations for the navigation in this area ;
- Define the channels/ frequencies to watch ;
- List the equipment and associated stations/navarea the ship will use to receive maritime safety information during the mission ;
- List the waypoints /speed / general information with the tracks.
- Define the safety parameters (for radar, ecdis, sounder, speed) for the passage planning.

2. Make a detail passage planning in the William sound bay from the mooring area to Valdez berth n°1 the sailing directions informations

- List of waypoints,
- Notes
- Abort point/ no return, no go area
- Communications (report, call the captain/bosun/ECR, VTS, deck...)
- Prepare the notice of area (NOA) in Valdez port

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ASSIGNMENTS

Working instructions

1- For all assignment you are working in team. So organize and share the work between the members of your team. Don't lose time ; during the first tutorial you have to proceed from stage 0 to stage 3 (and stage 3 will be finish in home work).

2- To do thos assignment, you should usee nautical publications (online and paper version), links on Vega, Open CPN.

3-Before the tutorial n°2, you have to give back to the instructor before 05/11 – 12:00:

- the evaluation of the present navigational condition (pdf or printed version)
- the passage planning (pdf or printed version) ;
- the gpx file of your planning passage ;
- the file of the video of your briefing

To achieve this goal you have to finish the assignment in homework.

As asked by the mission director you will prepare the passage planning of the mission. But as your mission begins in few months and as you are inquisitive, you decide a have a rapid look to see what are the present navigational conditions for Sikuliaq.

Stage 0 : Evaluation of present navigational conditions

During Tutorial 1 : Search and analyze the weather and sea ice charts

Find the weather and sea ice analysis and forecast charts, safetynet forecast for the position 75° 10,5'N / 142° 23,5'W.

Analyze the charts and images and define if the Sikuliaq is sailing in ice coverage.

If yes what is the type of the ice ?

Can the RV Sikuliaq navigate in the ice eastward ?

Define the weather condition at this position (use radiofax charts, safetynet information and ice charts).

Is there any risk of icing ? List the conditions forcing ?

Stage 1 : Appraisal

Tutorial1 : Search and list nautical publications (10 minutes)

First, **search on the web and list the nautical publications** which are necessary for the passage planning-- (nautical publications and charts).

You can have informations from french, american and english services. Is there a service better than another ?

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Stage 2 : Preparation of the passage planning

Tutorial 1 & homework: Preparation for the passage planning and the briefing

Write out a passage planning

To do this, you will use the nautical publications (paper or online) and charts downloaded on open CPN (or other chart editor) on you PC.

To write your passage planning, you will respect mission director and captain's instructions (see forward).

Remarks : On open CPN or other chart editor)

1. Download the charts neede
2. trace your route and check
3. Export your route on usb key as gpx or kml file.
4. Make a screen copy of the way points lit on Open Cpn to paste it in your passage planning file

Stage 3 : Briefing (& debriefing) about the passage planning

Tutorial 2 : Briefing & debriefing about the passage planning

Play your briefing in front of the class,

Debrief with the class about the passage plan and the briefing.

Stage 4 : Execution & monitoring

Tutorial 3 :Execution of the passage planning

To prepare this part, you will prepare

1. **your recommendations for the configuration of the bridge equipments (parameters to set to radar, ecdis, conning, echo sounder)**
2. **Analyze the sea ice analysis and forecast chart that will be given to you**

Note : half the class will be on the SIS (tutorial 3) and half the class will do an autonomous assignment on navigation in Hurricane & polar navigation. (tutorial 4) ; then there will be a shift between the two half class.