Sequence n° 2: wave propagation

1. Tidal bore

### ****Document 1: Tidal bores****

### ****Une image contenant eau, nature, plage, ciel Description générée automatiquement****

### **A **tidal bore** is a **tidal** **phenomenon** in which the leading edge of the incoming tide forms a **wave** (or waves) of water that travels up a river or narrow bay **against the direction** of the river or bay's current.**

### **Bores occur in relatively few locations worldwide, usually in areas with a large tidal range (typically more than 6 meters (20 ft) between high and low **tide**) and where incoming tides are **funneled** into a **shallow**, narrowing river or lake via a broad bay. The funnel-like shape not only increases the tidal range, but it can also decrease the duration of the **flood tide**, down to a point where the flood appears as a sudden increase in the water level. A tidal bore takes place during the flood tide and never during the **ebb tide**.**

### ****Source: wikipedia****

### ****Document 2: Arnside bore****

### **File:Arnside bore.ogv Watch : https://en.wikipedia.org/wiki/Tidal\_bore**

### ****Source: wikipedia****

### ****Document 3: Problem****

### 

### **A detector detects a tidal bore at distance x0 = 400m inside the river inlet.**

### **The wave has a speed of c = 20 km.h-1. A surfer is waiting for the wave at xsurf = 1,9km on the river.**

### **How long will he have to wait for the bore?**

### Understanding tidal bores: vocabulary

Read documents 1 and watch document 2. The table below contains definitions. Insert the correct word next to each definition using Document 1.

|  |  |
| --- | --- |
| **Word** | **Definition** |
|  | Contre le courant |
|  | Vague |
|  | Phénomène de marée |
|  | Marée |
|  | Marée descendante |
|  | Marée montante |
|  | Peu profond |

### Understanding tidal bores: problem

Give a numerical answer to the surfer’s problem in Document 3

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Activity summary

What you must remember:

**- propagation**

**- celerity**

Skills linked to the curriculum**:**

|  |  |
| --- | --- |
| **Compétences** | **Capacités à maitriser** |
| * APP | Faire le lien entre la situation réelle et le modèle proposé. |
| * ANA | Caractériser et identifier des ondes transversales et des ondes longitudinales.  Représenter et exploiter les graphes des évolutions temporelle et spatiale du phénomène observé. |
| * COM | Formuler et argumenter des réponses structurées  Formuler et présenter une conclusion |