



## KM3NeT INFRADEV – H2020 – 739560

# Report on the Outreach Material For KM3NeT

### KM3NeT INFRADEV GA DELIVERABLE: D3.1

Document identifier:	<b>KM3NeT-INFRADEV-WP3-D3.2_v2.2</b>
Date:	<b>28/01/2019</b>
Work package:	<b>WP 3</b>
Lead partner:	<b>CNRS</b>
Document status:	<b>Final</b>
Dissemination level:	<b>Public</b>
Document link:	

### Abstract

In this document we show the current outreach material developed in connection with the KM3NeT – INFRADEV project for the KM3NeT project in general. We show a wide range of materials for a range of stakeholders and show the use and background for each of them.

## I. COPYRIGHT NOTICE

Copyright © Members of the KM3NeT Collaboration

## II. DELIVERY SLIP

	Name	Partner/WP	Date
From	Paschal COYLE	CNRS / WP3	15/12/2018
Author(s)	Paschal COYLE	CNRS / WP3	
Reviewed by	OCC and Annarita Margiotta	CNRS + XXX	05/02/2019
Approved by	PMB		

## III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	21/1/2019	First draft version	P. Coyle
2	6/2/2019	Second draft version	P. Coyle
3		Final version	
4			

## IV. APPLICATION AREA

This document is a formal deliverable for the GA of the project, applicable to all members of the KM3NeT INFRADEV project, beneficiaries and third parties, as well as its collaborating projects.





## V. TERMINOLOGY

A complete project glossary is provided:

**ARCA:** Astroparticle Research with Cosmics in the Abyss

**ORCA:** Oscillation Research with Cosmics in the Abyss

## VI. LIST OF FIGURES

Figure 1: photo of the KM3NeT brochure.

Figure 2: photo of the KM3NeT flyers.

Figure 3: photos of a selection of the KM3NeT posters.

Figure 4: photos of a selection of the KM3NeT banners.

Figure 5: KM3NeT-Italy video.

Figure 6: KM3NeT-France video.

Figure 7: ARTE documentary: Messagers de l'univers.

Figure 8: The 'KM3NeT VR Experience'.

Figure 9: The KM3NeT VR event display.

Figure 10: Screen shots from the KM3NeT AR app.

Figure 11: Assortment of outreach material.

Figure 12: Assortment of branded material.

## VII. PROJECT SUMMARY

KM3NeT is a large Research Infrastructure that will consist of a network of deep-sea neutrino telescopes in the Mediterranean Sea with user ports for Earth and Sea sciences. Following the appearance of KM3NeT 2.0 on the ESFRI roadmap 2016 and in line with the recommendations of the Assessment Expert Group in 2013, the KM3NeT-INFRADEV project addresses the Coordination and Support Actions (CSA) to prepare a legal entity and appropriate services for KM3NeT, thereby providing a sustainable solution for the operation of the research infrastructure during ten (or more) years. The KM3NeT-INFRADEV is funded by the European Commission's Horizon 2020 framework and its objectives comprise, amongst others, the preparation of outreach material for the KM3NeT Collaboration (Work Package 3).



## VIII. EXECUTIVE SUMMARY

The main goal of WP3 is to grow financial, political and public support for the international KM3NeT project by communicating its value to stakeholders and the general public. The KM3NeT Outreach and Communication Strategic Plan (D3.1) aims at positioning KM3NeT as one of the top scientific and technological projects of the 21<sup>st</sup> century. It is a cooperative effort led by the KM3NeT Outreach and Communication Committee in close collaboration with communication and outreach offices in KM3NeT member countries. Five key priorities are formulated in the Strategic Plan: (i) Communicate the value of the KM3NeT project to all its stakeholders; including the public; (ii) Ensure that stakeholders and the public understand KM3NeT to be a single coherent project; (iii) Increase communication activity in all partner countries; (iv) Ensure that all stakeholders are engaged with the project at the national and international level (v) Support KM3NeT managers to attract new member nations to the project. In this document we report on the Outreach material developed to support these strategic communication goals.



# Table of Contents

<b>I. COPYRIGHT NOTICE .....</b>	<b>2</b>
<b>II. DELIVERY SLIP .....</b>	<b>2</b>
<b>III. DOCUMENT LOG .....</b>	<b>2</b>
<b>IV. APPLICATION AREA .....</b>	<b>2</b>
<b>V. TERMINOLOGY .....</b>	<b>3</b>
<b>VI. LIST OF FIGURES .....</b>	<b>3</b>
<b>VII. PROJECT SUMMARY .....</b>	<b>3</b>
<b>VIII. EXECUTIVE SUMMARY .....</b>	<b>4</b>
<b>Table of Contents .....</b>	<b>5</b>
<b>1. Introduction .....</b>	<b>6</b>
<b>2. KM3NeT Brochure .....</b>	<b>6</b>
<b>3. KM3NeT Posters/Banners.....</b>	<b>8</b>
<b>4. KM3NeT Videos/Films .....</b>	<b>9</b>
<b>5. KM3NeT Virtual Reality Apps.....</b>	<b>10</b>
<b>6. KM3NeT Augmented Reality App.....</b>	<b>11</b>
<b>7. Assorted Outreach Material .....</b>	<b>13</b>



# 1. Introduction

The KM3NeT strategy for communication with its stakeholders is set out in the KM3NeT Outreach and Communication Strategic Plan (D3.1). Five key priorities are formulated in the Strategic Plan: (i) Communicate the value of the KM3NeT project to all its stakeholders; including the public; (ii) Ensure that stakeholders and the public understand KM3NeT to be a single coherent project; (iii) Increase communication activity in all partner countries; Ensure that all stakeholders are engaged with the project at the national and international level (v) Support KM3NeT managers to attract new member nations to the project. The effort to reach these communication goals is led by the KM3NeT Outreach and Communication Committee in close collaboration with communication and outreach offices in KM3NeT member countries. Part of that plan includes the preparation of outreach material to help explain and promote the project to its target audiences.

Here we describe the various materials that have been developed by the Work Package 3, within the framework of KM3NeT-INFRADEV.

## 2. KM3NeT Brochure

A brochure targeted at the general public has been prepared (Fig. 1). The brochure is a double-sided pamphlet folded in three sections. The 'inside' features an artistic impression of the deep-sea infrastructure of the telescope along with a map of the two site locations. The three main science topics of the project (astronomy, neutrino and marine science) are briefly described. The 'outside' features a map of the locations involved in the Collaboration and a 'KM3NeT in Numbers' section that lists some of the key technical details of the infrastructure.



Figure 1: photo of the KM3NeT brochure.

The brochure is written in English, a French version targeted to the local French audience is also available. The brochure is available for download on the KM3NeT webpages. A large number will be printed for distribution to the various institutes in the Collaboration.

It is also planned to prepare another brochure targeted to financial stakeholders.

The WP9 has also developed (See Figure 2) some flyers that advertise the facilities that KM3NeT offers for use by other communities. These cover, a facility to measure PMTs, an equipment to measure deep-sea light absorption and finally a tool to facilitate connection/disconnection of deep-sea wetmateable connectors.



Figure 2: photo of the KM3NeT flyers.

### 3. KM3NeT Posters/Banners

A number of posters have been prepared. These explain the main science objectives of KM3NeT and describe the project and its technical implementation. A selection of these posters is shown in Figure 3.



Figure 3: photos of a selection of the KM3NeT posters.



Similarly, a variety of banners have been prepared, a selection of which is shown in Figure 4.



*Figure 4: photos of a selection of the KM3NeT banners.*

## 4. KM3NeT Videos/Films

A short (5min) (<https://youtu.be/ryvtOERXFOo>) describing the KM3NeT\_Italy project has been prepared by INFN/Italiana d'Arte. This video is in Italian. We are in the process of preparing an english version.



*Figure 5: KM3NeT-Italy video.*

A 14 min film (Fig. 5) following the construction of the KM3NeT-France detector is under preparation by the CNRS image. A teezer trailer is available here: <https://youtu.be/dMjN93H7NvoA> . French and English version will be available.



Figure 6: KM3NeT-France video.

Some KM3NeT members participated to an ARTE documentary (*'Messagers de l'univers'-Les neutrinos* <https://www.dailymotion.com/video/x5lkfy2>). This (Fig. 7) was transmitted on the ARTE TV channel on the 6/5/17.

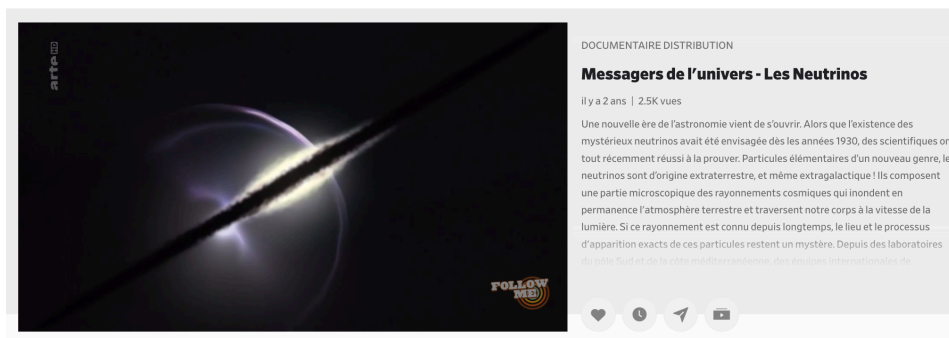


Figure 7: ARTE documentary: *Messagers de l'univers*.

A number of short videos are available on the KM3NeT YouTube channel, which present a variety of different aspects of the project.

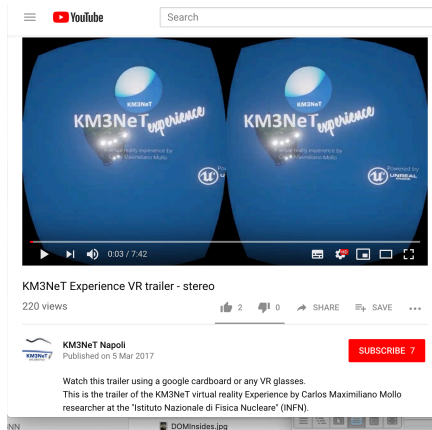
We are in discussions with France 5, Discovery Channel and Cosmos about the possibility of a future documentary on KM3NeT.

## 5. KM3NeT Virtual Reality Apps

A Virtual Reality application (Fig. 8) the 'KM3NeT Experience' (<https://youtu.be/zgKrfUu4fcQ>) has been developed for the Oculus Rift and will be available for free on the Oculus Store. It features a trip in a submarine from the surface of the sea to the seafloor. Along the way, there are encounters with fish, whales and bioluminescent jellyfish and the KM3NeT detection lines. Once on the sea bottom one can explore the seafloor environment. An original music score also accompanies it. The

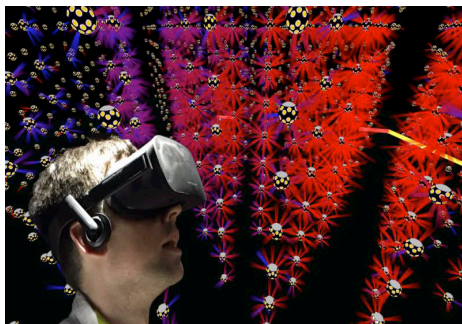


application has proved very popular with the general public at open days. Many institutes of KM3NeT have purchased the Oculus Rift to be able to make use of it.



*Figure 8: The 'KM3NeT VR Experience'.*

A Virtual Reality KM3NeT event display (Fig. 8) has also been developed. This can visualise any KM3NeT event in virtual reality and in particular observe the time dependence of the detected hits in the KM3NeT optical modules. Although mainly intended for scientific work, it has also impressed the general public during public outreach events.



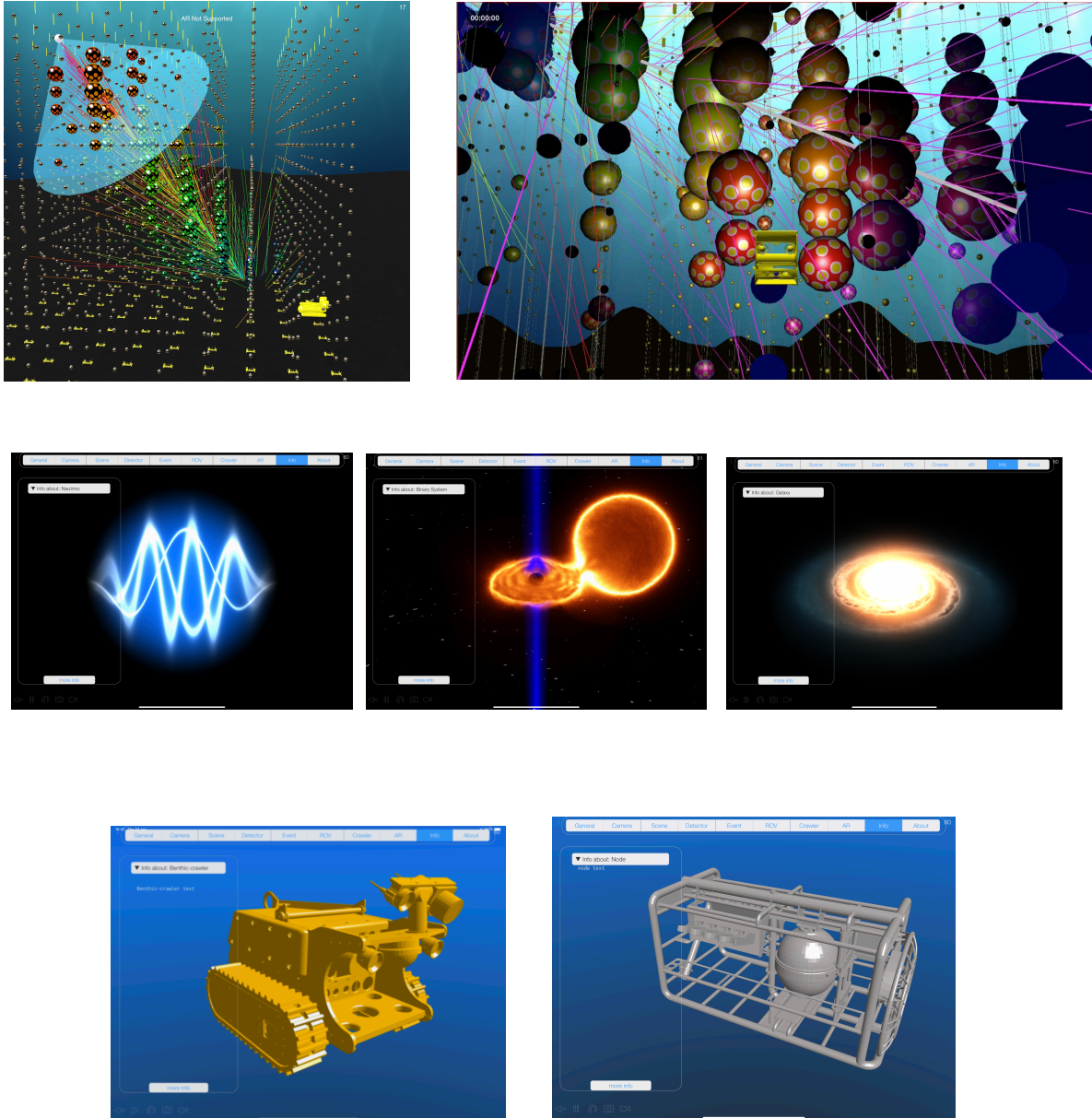
*Figure 9: The KM3NeT VR event display.*

We are investigating the possibility to switch from the Oculus Rift headset to the Oculus GO headset-this is a standalone headset that does not need to be connected to a laptop. The GO headset would be much more practical for outreach events.

## 6. KM3NeT Augmented Reality App

A KM3NeT Augmented Reality App for iphone/ipad is currently being finalised (Fig. 10). This app allows exploration of the KM3NeT telescope seafloor infrastructures in normal and

augmented reality. It features the ability to drive a ROV and a benthic crawler around the telescope. There are also various pages/animations that explain the science of KM3NeT. It also allows interactive visualisation of the various equipment of the KM3NeT telescope as well as those of the associated science experiments. A video can be viewed here: <https://www.youtube.com/watch?v=sc6zs1ulx8A>

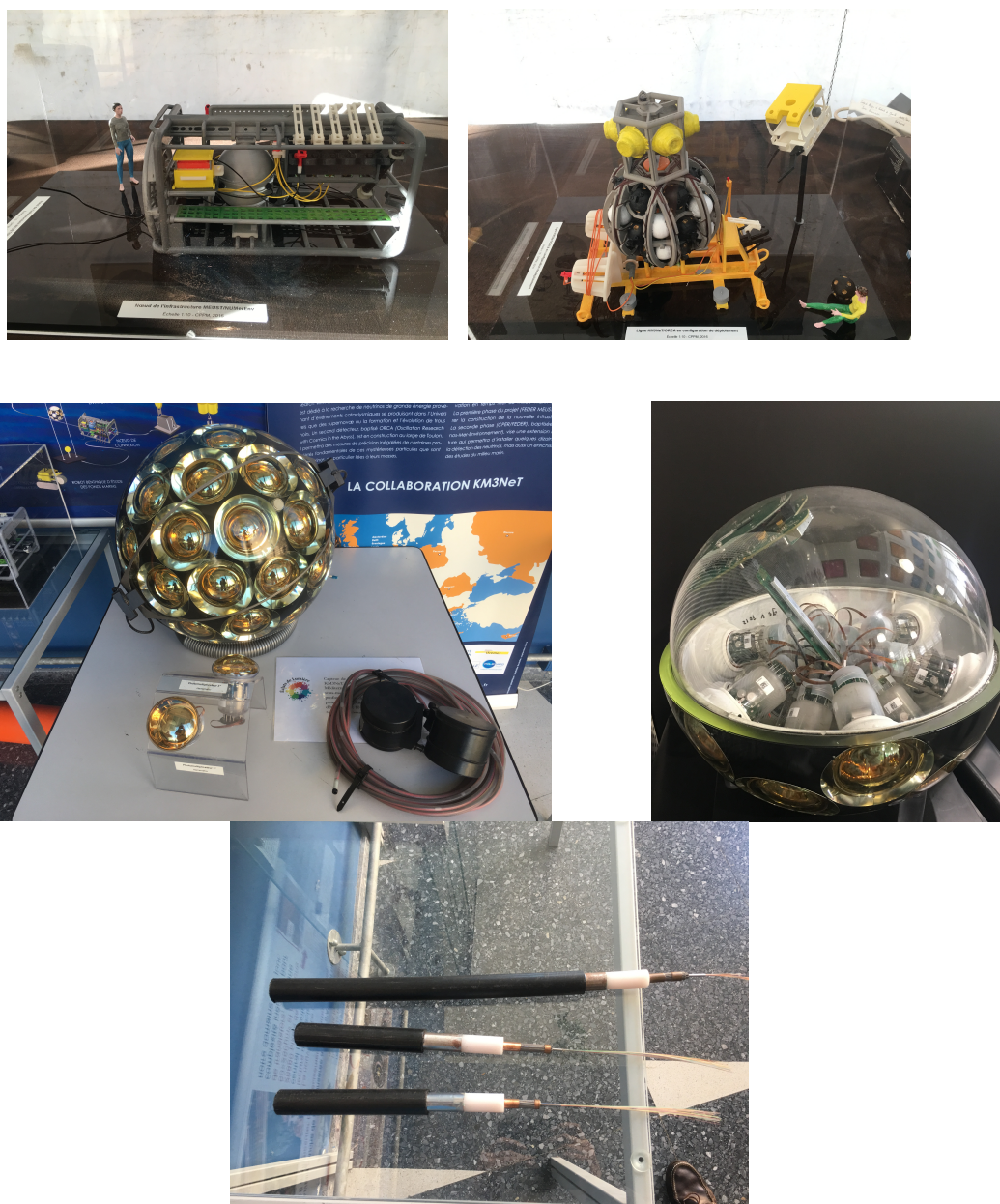


*Figure 10: Screen shots from the KM3NeT AR app.*

This app has also been used to generate some of the images used on the KM3NeT webpages. The app will be available for free on the Apple app store before the summer 2019.

## 7. Assorted Outreach Material

A variety of outreach material has been developed to help explain the KM3NeT to the general public and to also promote the KM3NeT brand. As illustrated in Figure 11, these include, a 3D printed model of the junction box, a 3D printed model of the deployment frame, sections of the main electro-optical cable, a KM3NeT optical module modified to be able to see the interior.





*Figure 11: Assortment of outreach material.*

As illustrated in Figure 12, a variety of KM3NeT branded material is also available.



*Figure 12: Assortment of branded material.*