

# 浮游动物分类

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## 1. 浮游生物数据集

In the past three decades various optical technologies capable of imaging zooplankton have been developed, including bench-top type imaging systems such as ZooScan and FlowCAM as well as in situ systems such as the Video Plankton Recorder (VPR), Underwater Vision Profiler (UVP), ZOOplankton VISualization system (ZOOVIS), the Lightframe On-sight Keyspecies Investigate System (LOKI), Shadow Image Particle Profiling Evaluation Recorder (SIPPER), and the In Situ Ichthyoplankton Imaging System (ISIIS)[1] and Imaging FlowCytobot (IFCB)

### 1.1 浮游生物

#### 1.1.1 已经分类

1. 论文 Automated taxonomic classification of phytoplankton sampled with imaging-in-flow cytometry 中用到的数据集: <http://aslo.org/lomethods/free/2007/0204a1.html> (IFCB). The images were collected with IFCB from Woods Hole Harbor water. (已经下载)
2. 伍兹霍尔海洋研究所 (Woods Hole Oceanographic Institution, WHOI) : <https://darchive.mblwhoilibrary.org/handle/1912/7341>. The images described here are part of a much larger data set collected by IFCB at the Martha's Vineyard Coastal Observatory (MVCO) starting in 2006 and continuing to the present. (这应该就是 MVCO: <http://ifcb-data.whoi.edu/mvco> 中的数据, 这里已经将 2006 到 2014 年采集的图像分类整理好, 没有 2015 年的。图片多, 正在下载)
3. plankton net: <http://planktonnet.awi.de>. Taxonomic database of images of plankton species. (种类已经分好了, 还没找到打包下载的地方, 需要抓图)。
4. Michael R. Martin's Phytoplankton Image Library: <http://www.cedareden.com/phyto.html> (图片不多, 分类也不太准确, 需要抓图)
5. Scientific Committee on Oceanic Research(SCOR) created an international working group to evaluate the state of Automatic Visual Plankton Identification (<http://www.scor-wg130.net>)[2]。数据集在 Archive-ImageDataSet 中。(已经下载)

6. ZOOSCAN: <http://www.zooscan.obs-vlfr.fr//> Training Sets 中有几个数据集，除了之前我们实验使用的数据集，论文中的数据集（就是我们之前想和作者要的数据集）也在其中。（已经下载）
7. kaggle plankton: <https://www.kaggle.com/c/datasciencebowl>，训练集已经分类，测试集没有分类。（已经下载）
8. ZooImage: <http://www.sciviews.org/zooimage/index.html>（已经下载）

### 1.1.2 没有分类

1. MVCO: <http://ifcb-data.whoi.edu/mvco>。（2015 年，需要抓图）  
NASA Healy Arctic cruise : <http://ifcb-data.whoi.edu/Healy1101>  
Salt Pond: <http://ifcb-data.whoi.edu/saltpond>。
2. SPC: <http://spc.ucsd.edu/imagdata/spcview-plankton-camera-image-browser/>。
3. <http://gallery.obs-vlfr.fr/gallery2/main.php>（有少量图像，少部分已经分类，大部分没有分类）

### 1.1.3 联系要数据集

1. SAHFOS (Sir Alister Hardy Foundation for Ocean Science)[http://www.sahfos.ac.uk/pil/plankton\\_image\\_database\\_homepage.htm](http://www.sahfos.ac.uk/pil/plankton_image_database_homepage.htm)（每一类的图片只有几张，不知道联系能不能要到更多图片）
2. <http://cfb.unh.edu/cfbkey/html/>（只有例图，应该有数据集）
3. plankton imaging ISIIS: <http://www.planktonimaging.com>（仪器）
4. Zooniverse: <https://www.zooniverse.org>，它有一个 project 是 Plankton Portal: <http://www.planktonportal.org>（仪器）
5. FlowCam: <http://www.fluidimaging.com/applications/aquatic-research/marine-science>（仪器）

### 1.1.4 没有找到数据集

1. <http://life.bio.sunysb.edu/marinebio/plankton.html>（有例图，但是没有找到数据集）

2. Image Quest Marine: <http://www.imagequest3d.com/pictures/phytoplankton/>、[http://www.imagequestmarine.com/en/set/show\\_content\\_page.html?category=6&set=8&qw=](http://www.imagequestmarine.com/en/set/show_content_page.html?category=6&set=8&qw=)、<http://www.imagequest3d.com/photos/zooplankton/> (只有少量图像)
3. <http://australianmuseum.net.au/zooplankton> (只有例图)
4. Census of Marine Zooplankton: <http://www.cmarz.org/galleries.html#> (只有少量图像)
5. <http://habsos.noaa.gov> (网页左下角有图片, 但是没有找到数据集)
6. The data described in this paper will shortly be made available through the CalCOFI DataZoo Website: <http://oceaninformatics.ucsd.edu/datazoo/> (这是 OCEANS 那篇论文提到的数据集, 我还没有找到怎样下载)
7. Plankton Web: <http://www.sfrc.ufl.edu/planktonweb/index.htm>。(只有少量图例)
8. NOAA: <https://www.nodc.noaa.gov/access/cdrom.html#woa09>(DVD) (从<https://www.nodc.noaa.gov/General/plankton.html>找到的)

### 1.1.5 介绍浮游生物

1. MARINEBIO: <http://marinebio.org/oceans/zooplankton/>
2. SCRIPPS INSTITUTION OF OCEANOGRAPHY——Zooplankton of the San Diego Region: <https://scripps.ucsd.edu/zooplanktonguide/>。浮游动物的种类分的很细, 分别进行了介绍, 有的种类下面都有一段小视频。
3. <http://www.imas.utas.edu.au/zooplankton/home>

## 参考文献

- [1] H Bi, Z Guo, MC Benfield, C Fan, M Ford, S Shahrestani, and JM Sieracki. A semi-automated image analysis procedure for in situ plankton imaging systems. *PloS one*, 10(5):e0127121–e0127121, 2014.
- [2] Gaby Gorsky, Mark D Ohman, Marc Picheral, Stéphane Gasparini, Lars Stemmann, Jean-Baptiste Romagnan, Alison Cawood, Stéphane Pesant, Carmen García-Comas, and Franck Prejger. Digital zooplankton image analysis using the zooscan integrated system. *Journal of Plankton Research*, 32(3):285–303, 2010.