How to install HARMONICS for macOS

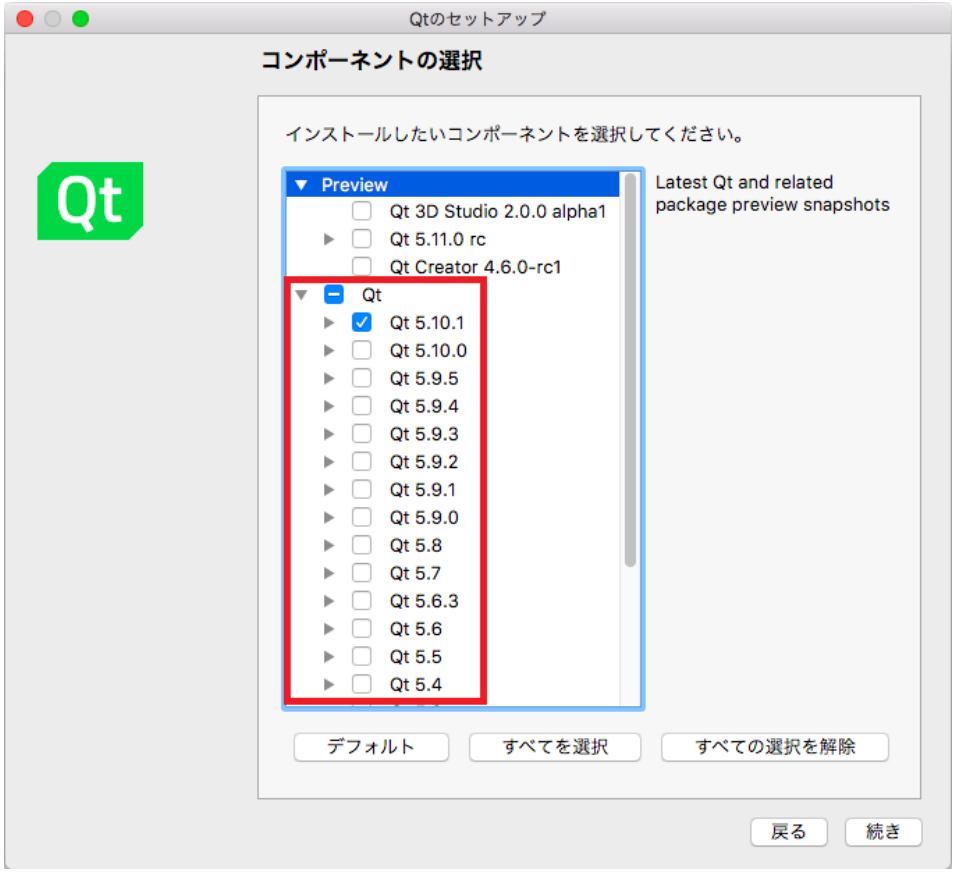
1 Install xcode
verified version 9.2

In case of previous versions, please download the following xcode.
https://itunes.apple.com/jp/app/xcode/id497799835?mt=12

2 Install Qt
verified version 5.10.1

In case of previous versions, please download the following Qt installer.
http://download.qt.io/official_releases/online_installers/qt-unified-mac-x64-online.dmg
Follow install instructions in the dmg.

Notes
Please set appropriate check-box.
When you select installing coponents, turn on the check-box of Qt 5.10.1.
If you finished withoug this confirmation, please use Maintenance Tool.app.



3 Set up homebrew
Test the following command in a prompt on your terminal.
$ which brew
In case displaying no setting of path, install the homevrew.
$ /usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
Check status of homebrew installation.
$ brew doctor
Confirm the message "Your system is ready to brew."

Install required libratirs by this homebrew.
First carry out the following command and browse the list.
$ brew list

```
wlan-napt-001:~ demodemo$ brew list
ccfits          gdbm            numpy           python3         xvid
cfitsio         ilmbase         opencv          readline        xz
cspice          jpeg            openexr         sqlite
curl            lame            openssl         tbb
eigen           libpng          pkg-config      webp
ffmpeg          libtiff         python          x264
```

If you don't have opencv, ccfits, webp, and sqlite, please install them by the following commands.
Please type y and enter, if you're asked confirmation of this install.
$ brew install opencv
$ brew install cfitsio

$ brew tap brewsci/science
$ brew install ccfits
$ brew install webp

$ brew install sqlite

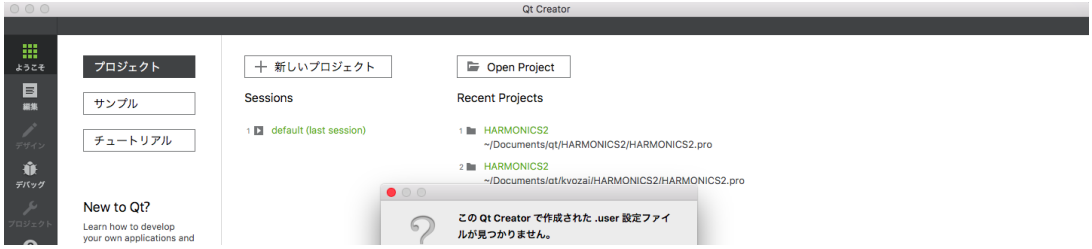
$ brew install curl

4 Install cspice
$ brew install cspice

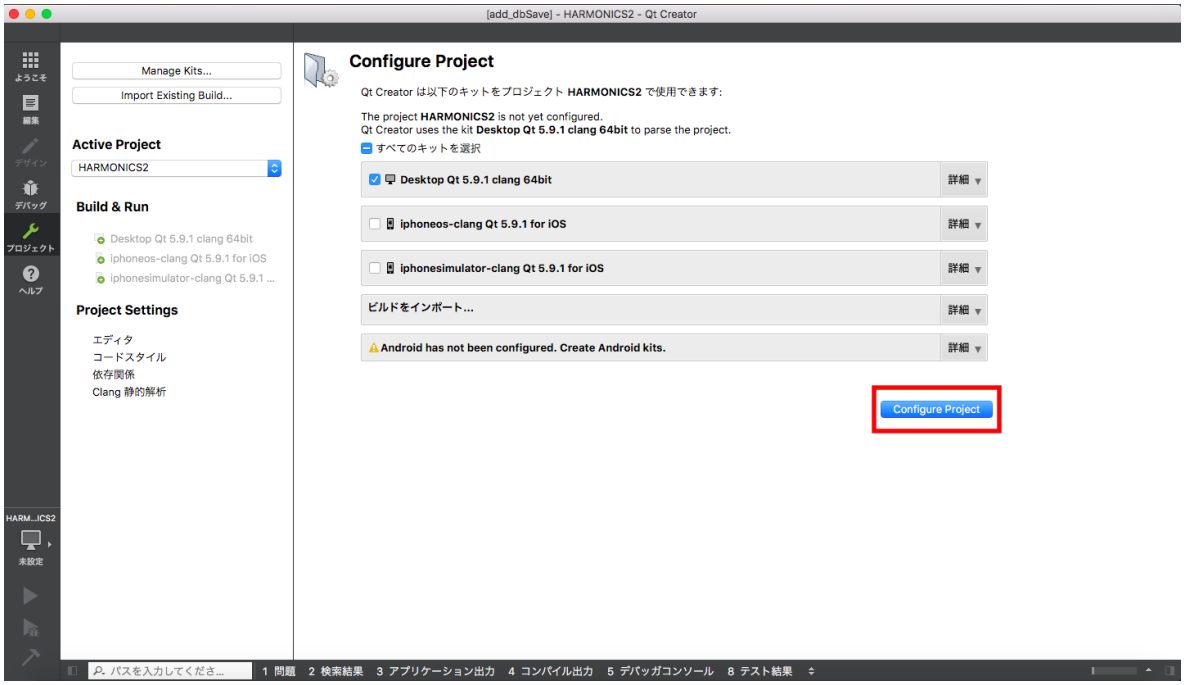
If you have any problems, please carry out the following steps.

Manual installation of cspice
If you use macports, you cannot install cspice by it. You install cspice manually.
http://naif.jpl.nasa.gov/pub/naif/toolkit//C/MacIntel_OSX_AppleC_64bit/packages/cspice.tar.Z
Uncompress cspice.tar.Z
Carry out the following commands on the uncompressed "cspice" directory.
$ sudo cp lib/*.a /usr/local/lib/
$ sudo cp include/* /usr/local/include/
$ sudo cp exe/* /usr/local/bin/

5 Set up HARMONICS
Carry out HARMONICS2.pro in the project directory.
After Qt started, you find the next dialogue.
Please select "No" in the dialogue.



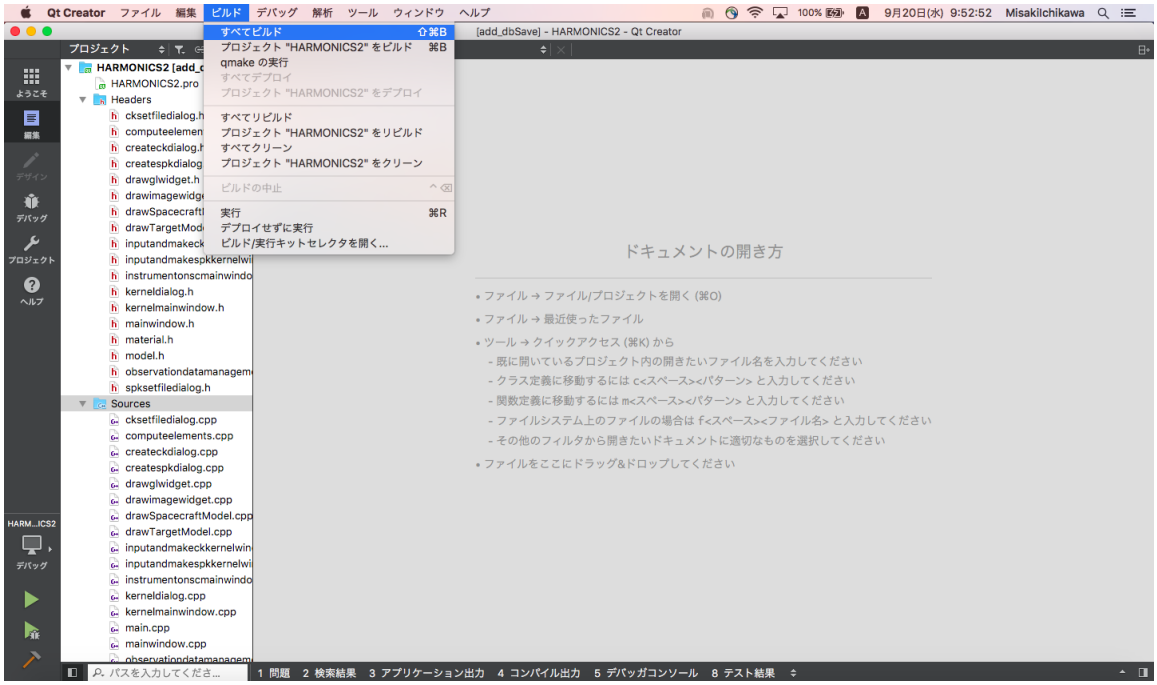
Select Configure Project



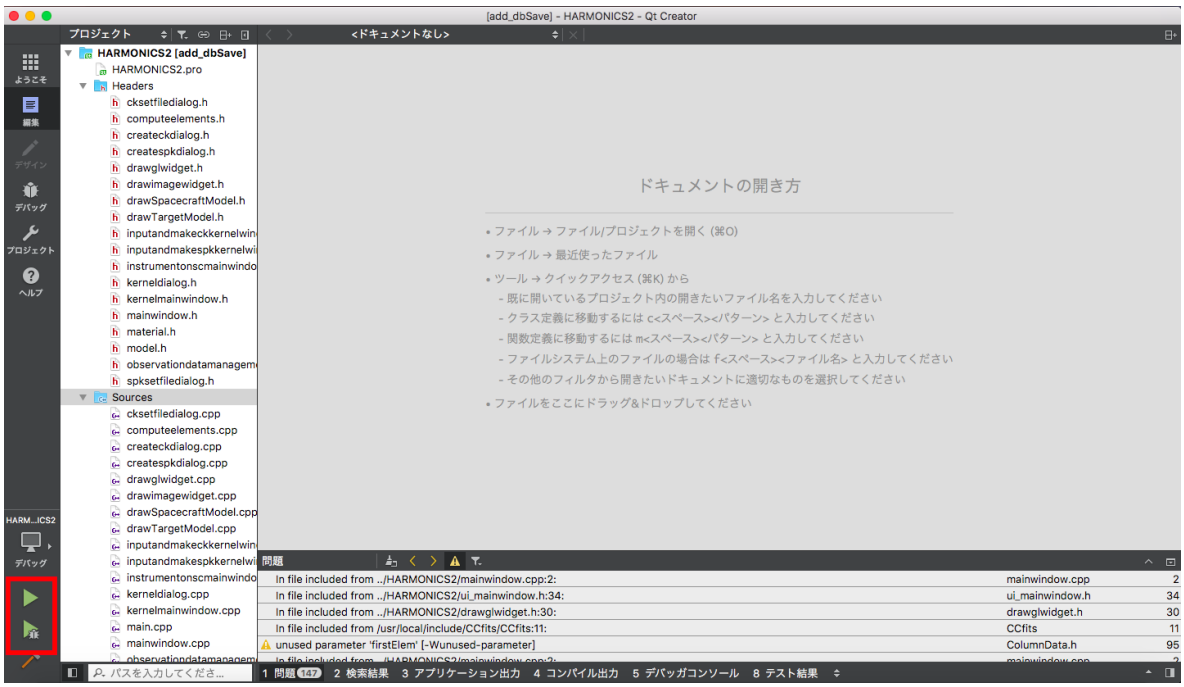
Confirm loading *.h files and *.cpp files successfully.

Confirm the following path is written in .pro file.
"LIBS += /usr/local/opt/curl/lib/libcurl.dylib"

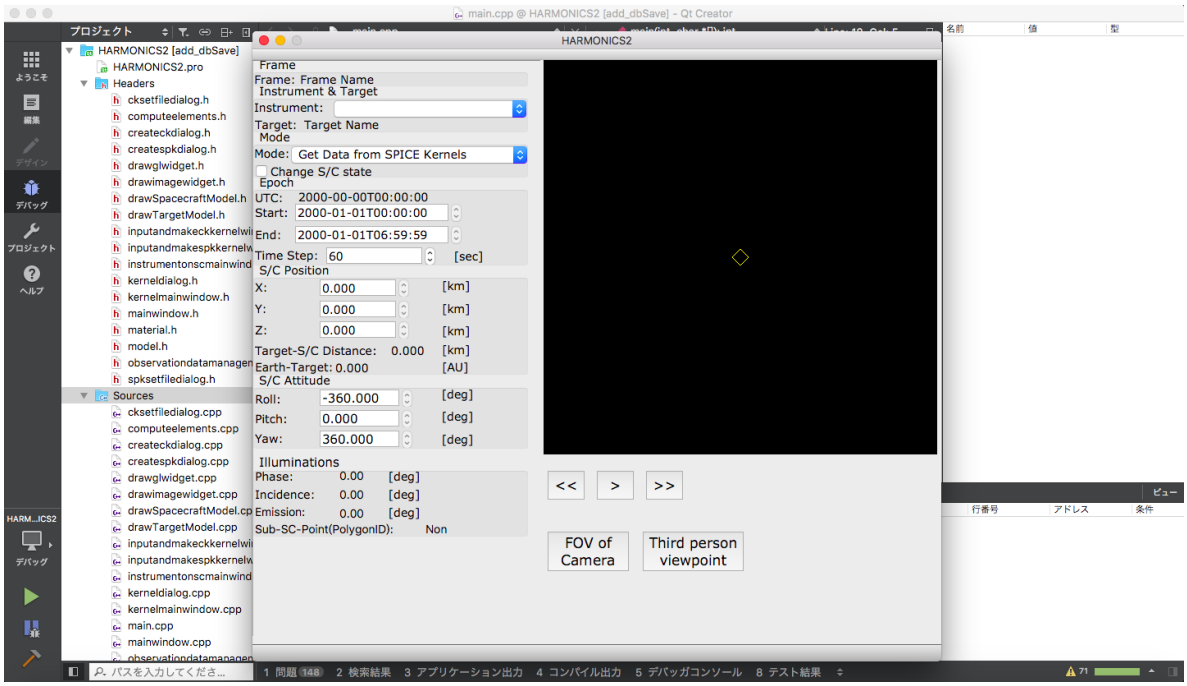
Select Build in menu-bar.
It takes 5-10 min in the first building.



Start-up HARMONICS
You can select preferable modes.



Open HARMONICS window



Notes:

If you have a message "'TargetConditionals.h' file not found", then please edit the following file.

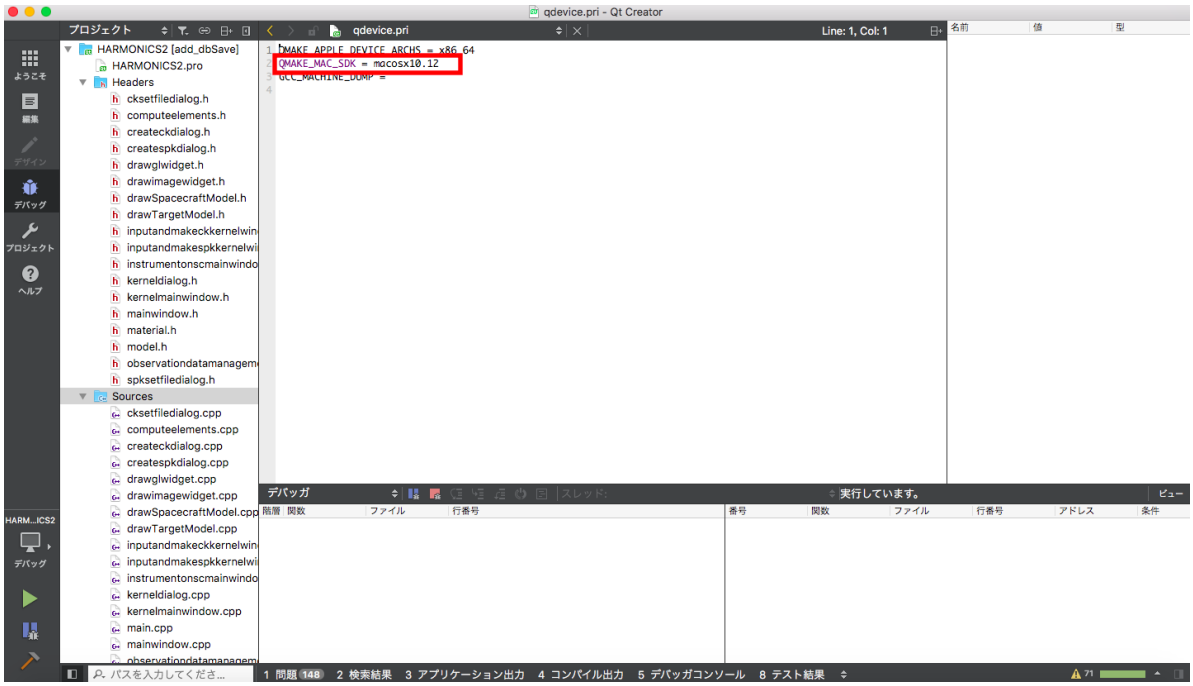
/Users/"Your_Account"/Qt/5.9.1/clang_64/mkspecs/qdevice.pri

(Before)

QMAKE_MAC_SDK = macosx

(After)

QMAKE_MAC_SDK = macosx10.13



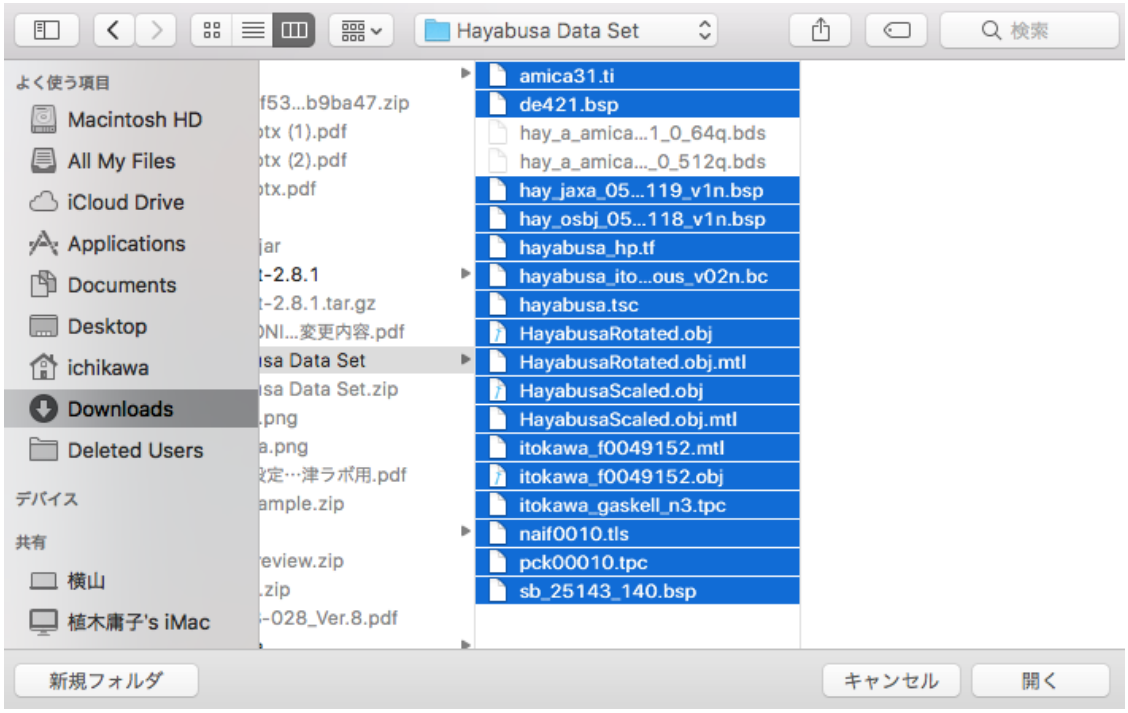
Loading dataset

Touch Menu-bar

Select "File -> Read Data Set"

Select files in the next opening dialogue.

Select "Open" button



Notes:
Initial status is too far to see the asteroid Itokawa.
You find Itokawa setting start-time as 2005-9-11.

********** Error Message in Start-up of HARMONICS **********

In case "Project Error: Xcode not set up properly."
Change your current working directory to Qt directory, then carry out the followings.
grep –rn /usr/bin/xcrun .
Edit "Qt_Directory/5.x/clang_64/mkspecs/features/mac/default_pre.prf
Change line 14-15 as follows.
(Before)
isEmpty($$list($$system("/usr/bin/xcrun -find xcrun 2>/dev/null"))):
(After)
isEmpty($$list($$system("/usr/bin/xcrun -find xcodebuild 2>/dev/null"))):