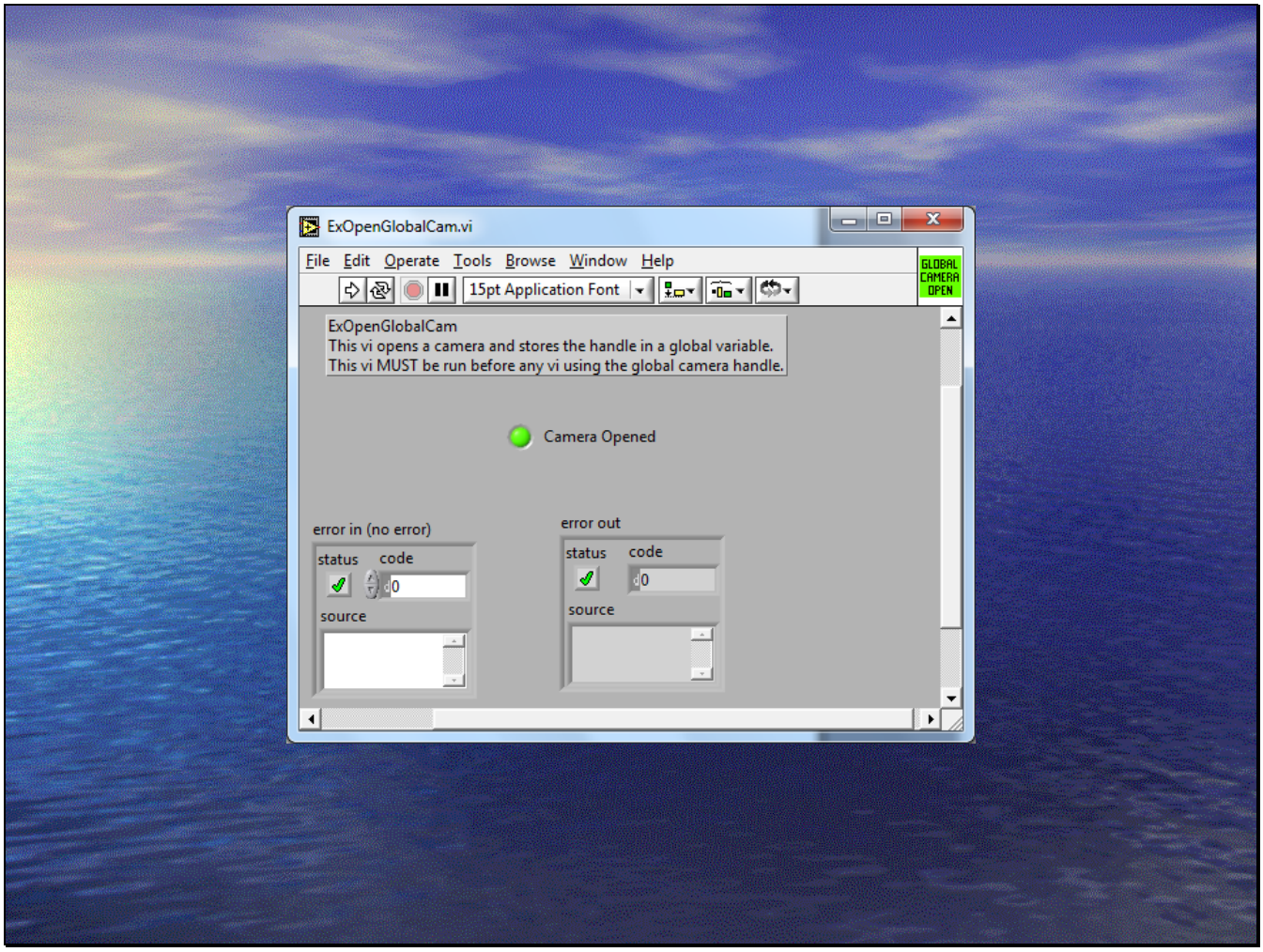

Getting started with Q Imaging cameras and SITK® for LabView

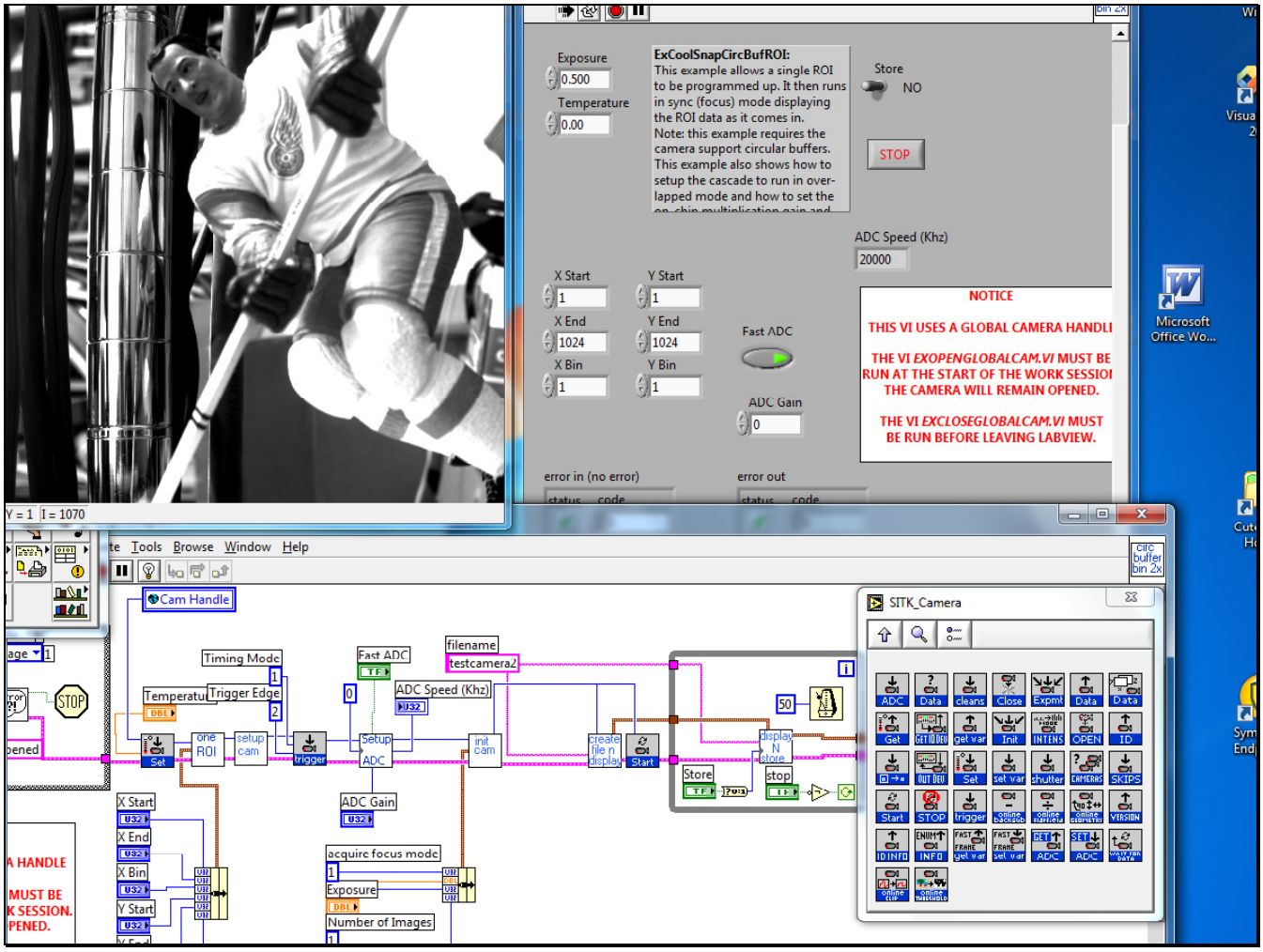
Opening the camera

- Go to the SIToolkit/LabVIEW/ExamplesXX folder.
- Go to the Open-Close folder
- Select ExOpenGlobalCam.vi and run it.
- The green light should come on when the camera is opened succesfully.
- Keep camera open until you are ready to leave Labview then run ExCloseGlobalCam.vi which will close the camera and do clean up.


ExOpenGlobalCam.vi
File Edit Operate Tools Browse Window Help
15pt Application Font
GLOBAL CAMERA OPEN
ExOpenGlobalCam
This vi opens a camera and stores the handle in a global variable.
This vi MUST be run before any vi using the global camera handle.
Camera Opened
error in (no error)
status
code
0
source
error out
status
code
0
source

Collecting data

- Go to the Q-Imaging Folder in Examples.
- This contains many examples.
- Select ExQCircBufROI.vi and fill in exposure and x and y dimension.
- Run the example and you should see a display that is collecting data.
- Hit the “STOP” button on the front panel (not the LabVIEW vi stop)

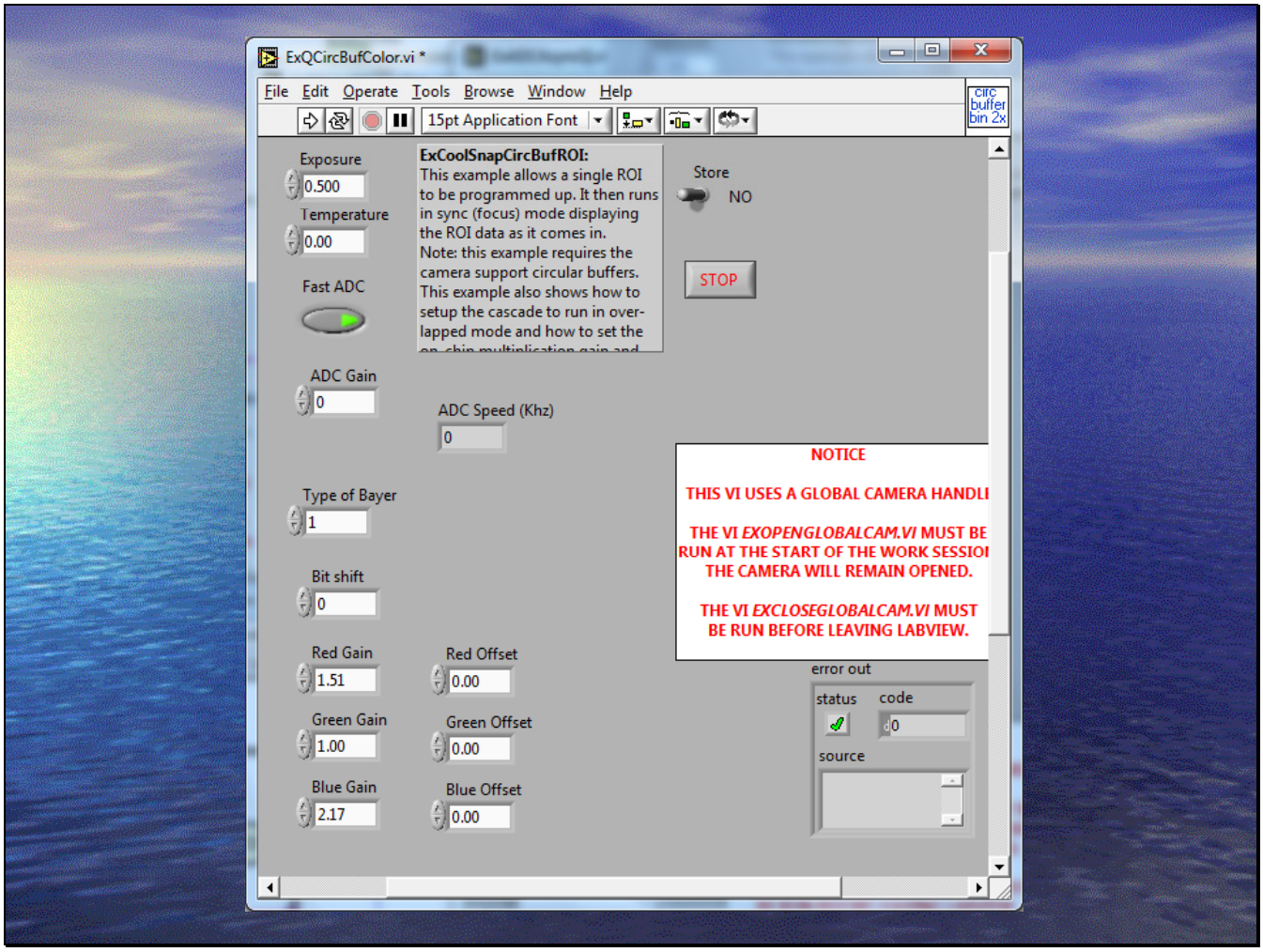

Exposure
0.500
Temperature
0.00
ExCoolSnapCircBufROI:
This example allows a single ROI to be programmed up. It then runs in sync (focus) mode displaying the ROI data as it comes in.
Note: this example requires the camera support circular buffers.
This example also shows how to setup the cascade to run in over-lapped mode and how to set the
Store
NO
STOP
ADC Speed (Khz)
20000
X Start
1
Y Start
1
X End
1024
Y End
1024
X Bin
1
Y Bin
1
Fast ADC
ADC Gain
0
NOTICE
THIS VI USES A GLOBAL CAMERA HANDLI
THE VI EXOPENGLOBALCAM.VI MUST BE RUN AT THE START OF THE WORK SESSIOI
THE CAMERA WILL REMAIN OPENED.
THE VI EXCLOSEGLOBALCAM.VI MUST BE RUN BEFORE LEAVING LABVIEW.
error in (no error)
error out
Y = 1 I = 1070
Tools Browse Window Help
Cam Handle
Timing Mode
Trigger Edge
Fast ADC
filename
testcamera2
ADC Speed (Khz)
one ROI
setup cam
trigger
Setup ADC
init cam
create file n display
Start
display N store
stop
Store
50
ADC Gain
X Start
X End
X Bin
Y Start
acquire focus mode
Exposure
Number of Images
SITK_Camera
A HANDLE
MUST BE
K SESSION.
PENED.

Other programs that can be run.

- After the STOP button has been hit you can rerun this program or try other programs.
- ExQCircBufROI.vi shows focus mode which continuously captures data.
- ExSimpleAsyncExampleGblQ.vi shows how to capture single frames at a time.
- ExQSnapNframeSeq.vi shows how to capture a sequence of frames fast (stored in ram, then displayed when done).

Color cameras

- If you have a color camera, you can still use previous programs but the images will be grayscale. An example of getting a color image is the data collection example ExQCircBufColor.vi.
- Fill in red, green and blue gains. These may be different for each color camera. Some good defaults are loaded.

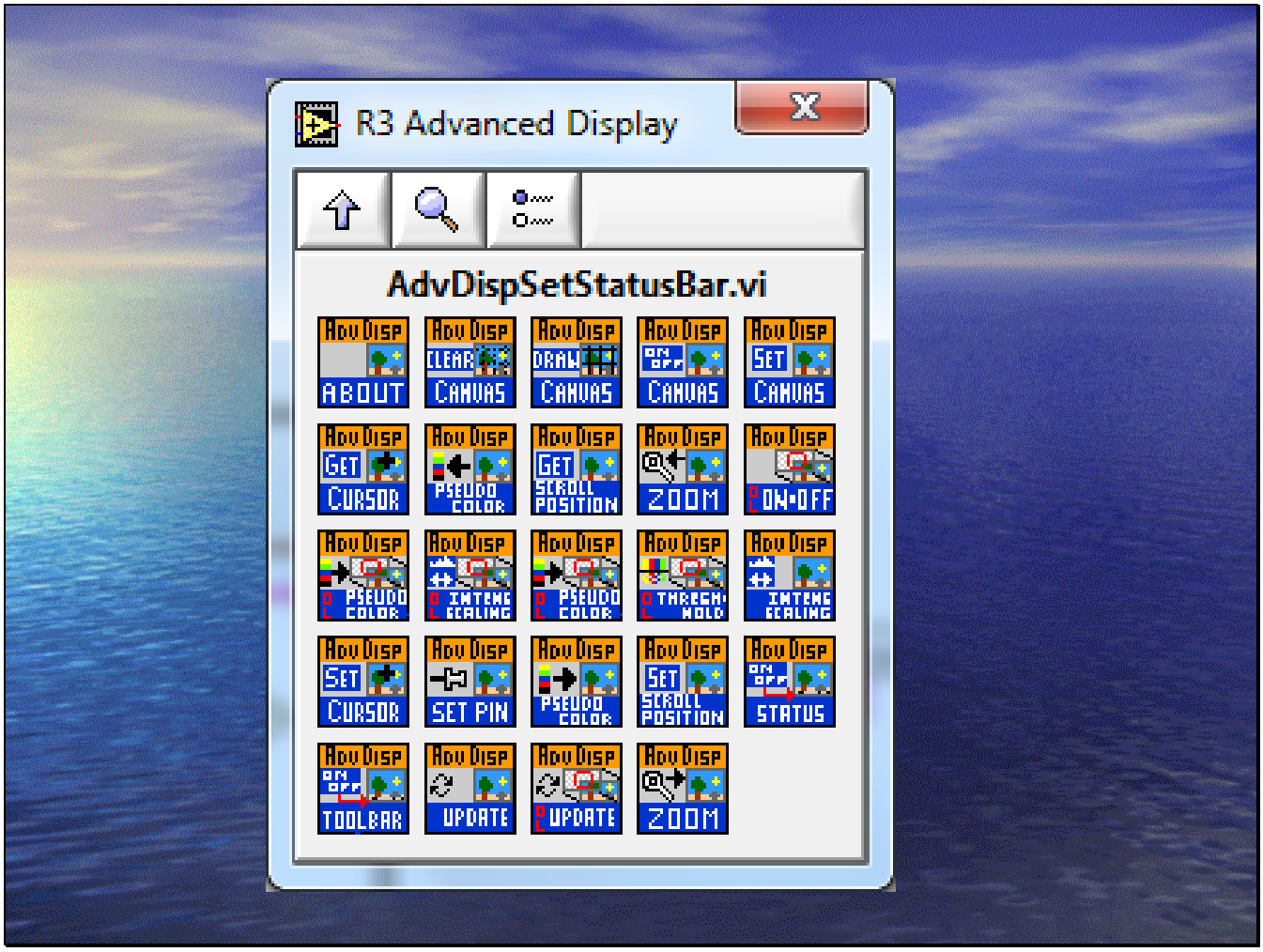

ExQCircBufColor.vi *
File Edit Operate Tools Browse Window Help
15pt Application Font
circ buffer bin 2x
Exposure
0.500
Temperature
0.00
Fast ADC
ExCoolSnapCircBufROI:
This example allows a single ROI to be programmed up. It then runs in sync (focus) mode displaying the ROI data as it comes in.
Note: this example requires the camera support circular buffers. This example also shows how to setup the cascade to run in over-lapped mode and how to set the
Store
NO
STOP
ADC Gain
0
ADC Speed (Khz)
0
NOTICE
THIS VI USES A GLOBAL CAMERA HANDLE
THE VI EXOPENGLOBALCAM.VI MUST BE RUN AT THE START OF THE WORK SESSION THE CAMERA WILL REMAIN OPENED.
THE VI EXCLOSEGLOBALCAM.VI MUST BE RUN BEFORE LEAVING LABVIEW.
Type of Bayer
1
Bit shift
0
Red Gain
1.51
Red Offset
0.00
Green Gain
1.00
Green Offset
0.00
Blue Gain
2.17
Blue Offset
0.00
error out
status
code
0
source


testcamera2
X = 2465
Y = 185
I = (45, 20, 19)

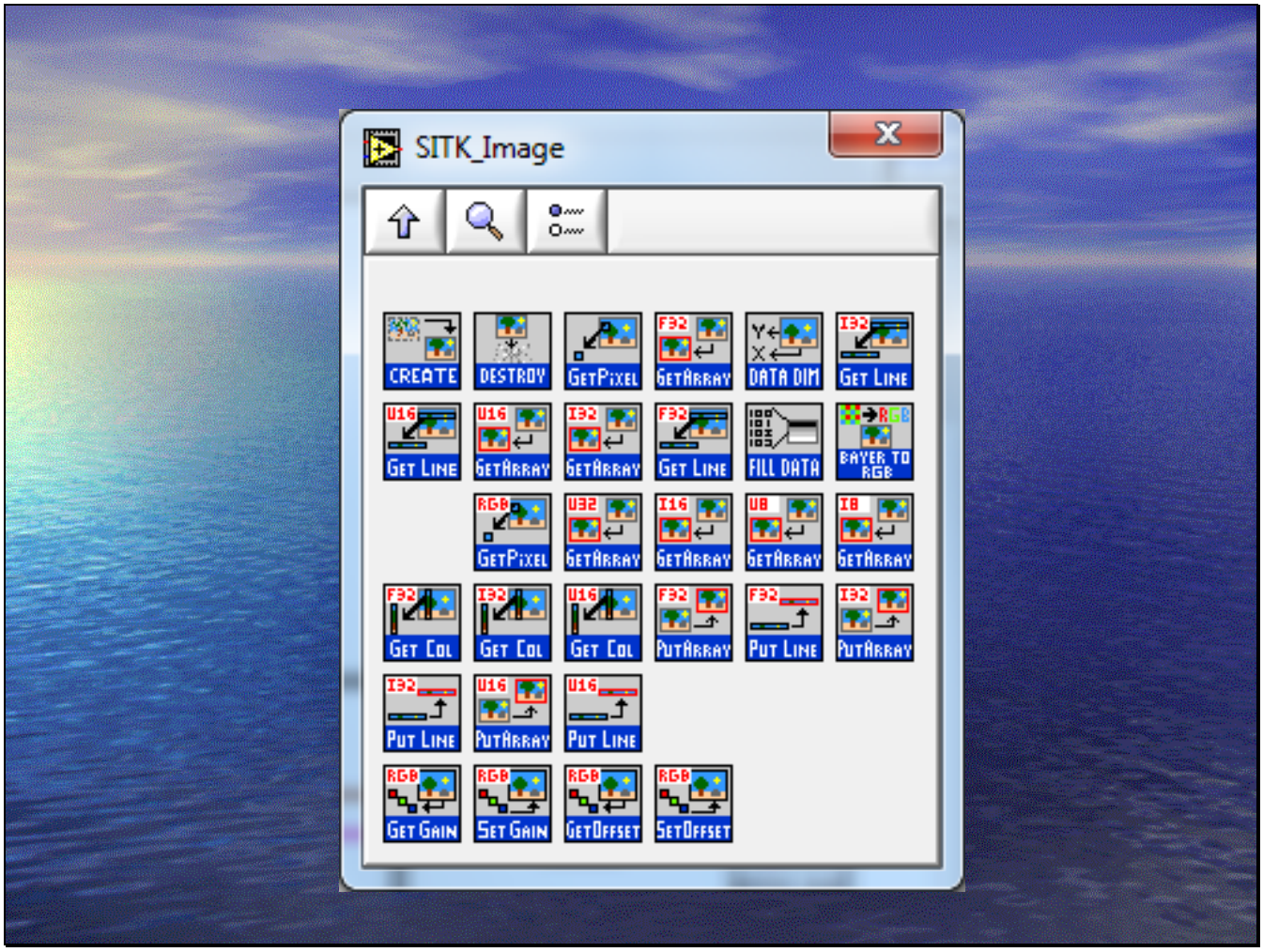
SITK® for LabView Pallets

- There are 7 pallets in the user library that are supplied
- Advanced Display: Full image support including overlays
- Camera: Camera setup and data collection
- Simple Display: Fast but limited feature image display.
- File: including Tif and Spe file formats.
- Image: allows pixels, rows, columns and full images to be retrieved and placed in the SITK® internal data structures.
- Math: general math operations, including statistics, that are quicker than bringing data out to LabView
- General: miscellaneous functions


User Libraries
Rov Disp
CAMERA
CUSTCHIP
DISPLAY
FILE
GENERAL
IMAGE
KINETICS
MATH


R3 Advanced Display
AdvDispSetStatusBar.vi
ABOUT
CANVAS
CLEAR CANVAS
DRAW CANVAS
ON OFF CANVAS
SET CANVAS
GET CURSOR
PSEUDO COLOR
GET SCROLL POSITION
ZOOM
ON-OFF
PSEUDO COLOR
INTENS SCALING
PSEUDO COLOR
THRESH-HOLD
INTENS SCALING
SET CURSOR
SET PIN
PSEUDO COLOR
SET SCROLL POSITION
ON OFF STATUS
ON OFF TOOLBAR
UPDATE
UPDATE
ZOOM

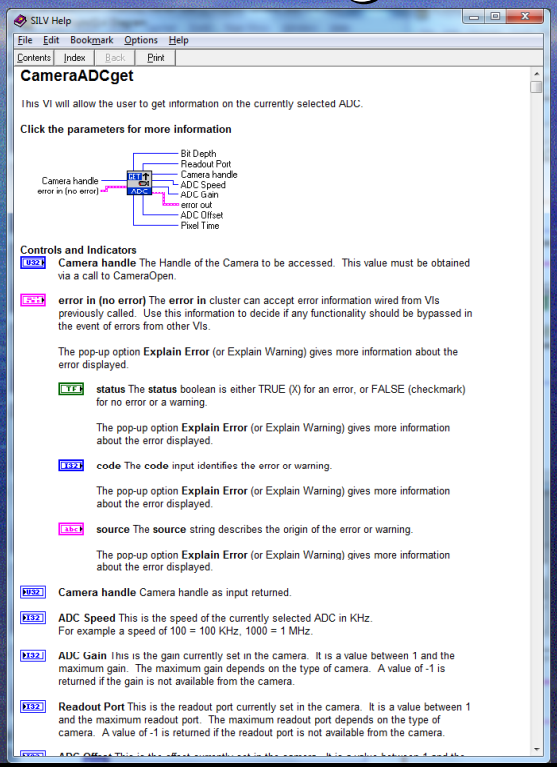

SITK_Camera
ADC
Data
cleans
Close
Expmt
Data
Data
Get
GET ID DEV
get var
Init
MODE
INTENS
OPEN
ID
OUT DEV
Set
set var
shutter
CAMERAS
SKIPS
Start
STOP
trigger
online BACKSUB
online FIXPFIELD
online GEOMETRY
VERSION
ID INFO
ENUM
INFO
FAST FRAME
get var
FAST FRAME
set var
GET
ADC
SET
ADC
WAIT FOR DATA
online CLIP
online THRESHOLD


SITK_Image
CREATE
DESTROY
GetPixel
GetArray
DATA DIM
Get Line
Get Line
GetArray
GetArray
Get Line
FILL DATA
BAYER TO RGB
GetPixel
GetArray
GetArray
GetArray
GetArray
Get Col
Get Col
Get Col
PutArray
Put Line
PutArray
Put Line
PutArray
Put Line
Get Gain
Set Gain
GetOffset
SetOffset


SITK_Dis...
display
display
display
SITK_Math
DATA OP CONSTANT MATH
DATA OP DATA MATH
OP DATA MATH
STATS MATH
SITK_General
GET IDS
LOAD
MERGE ERR
VERSIONS
UNLOAD
IS ERROR
SET DEBUG
SITK_File
CLOSE
DATA DIM
OPEN
READ
SAVE
get var
set var

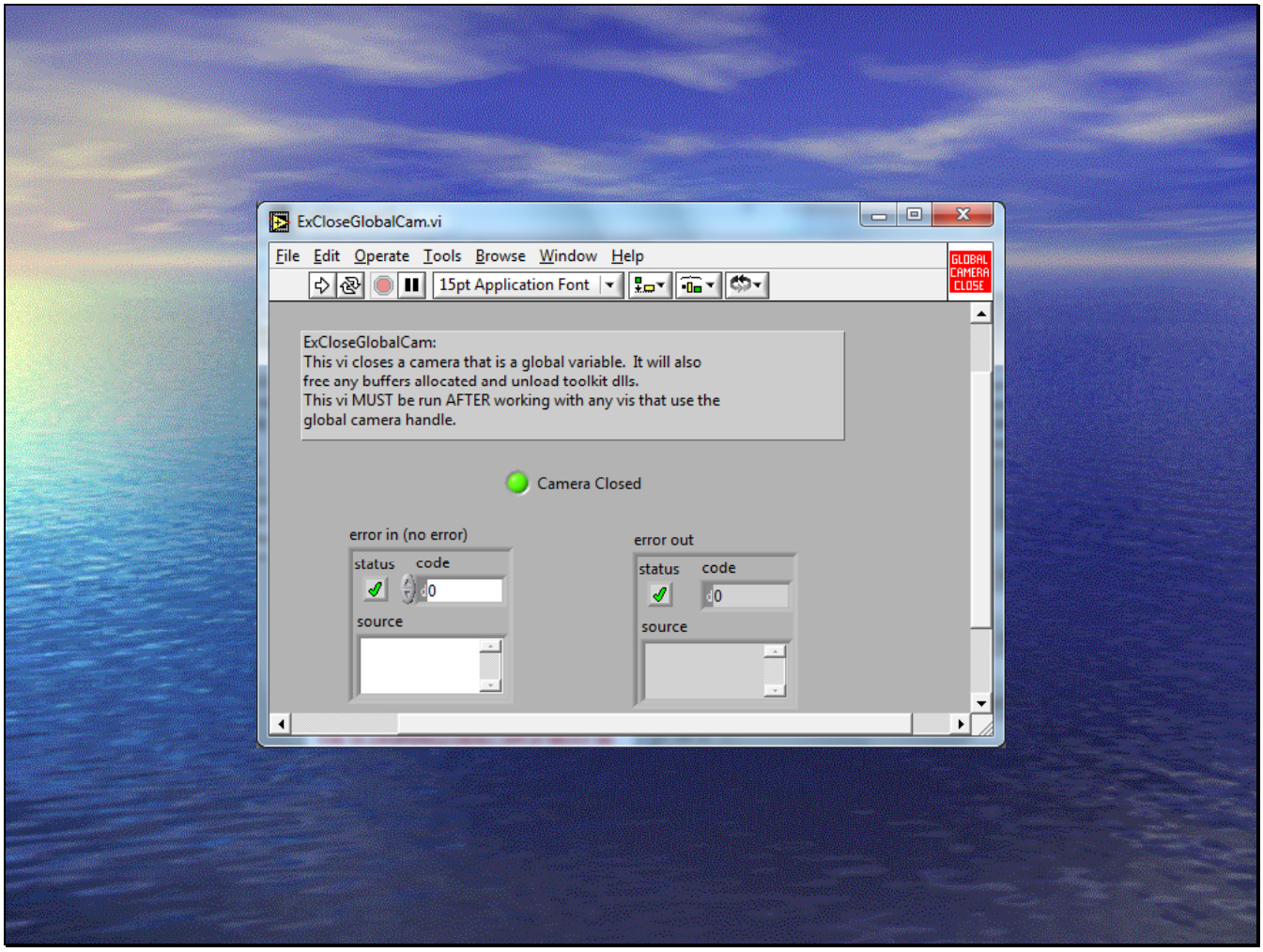
Online help

- Right click on an SITK® Vi and select Help



Close camera

- Before leaving LabView you should close the camera so that the software buffers are cleaned up and the camera dll's are unloaded.
- To do this go back to the Open-Close folder and run ExCloseGlobalCam.vi


ExCloseGlobalCam.vi
File Edit Operate Tools Browse Window Help
15pt Application Font
GLOBAL CAMERA CLOSE
ExCloseGlobalCam:
This vi closes a camera that is a global variable. It will also
free any buffers allocated and unload toolkit dlls.
This vi MUST be run AFTER working with any vis that use the
global camera handle.
Camera Closed
error in (no error)
status
code
0
source
error out
status
code
0
source