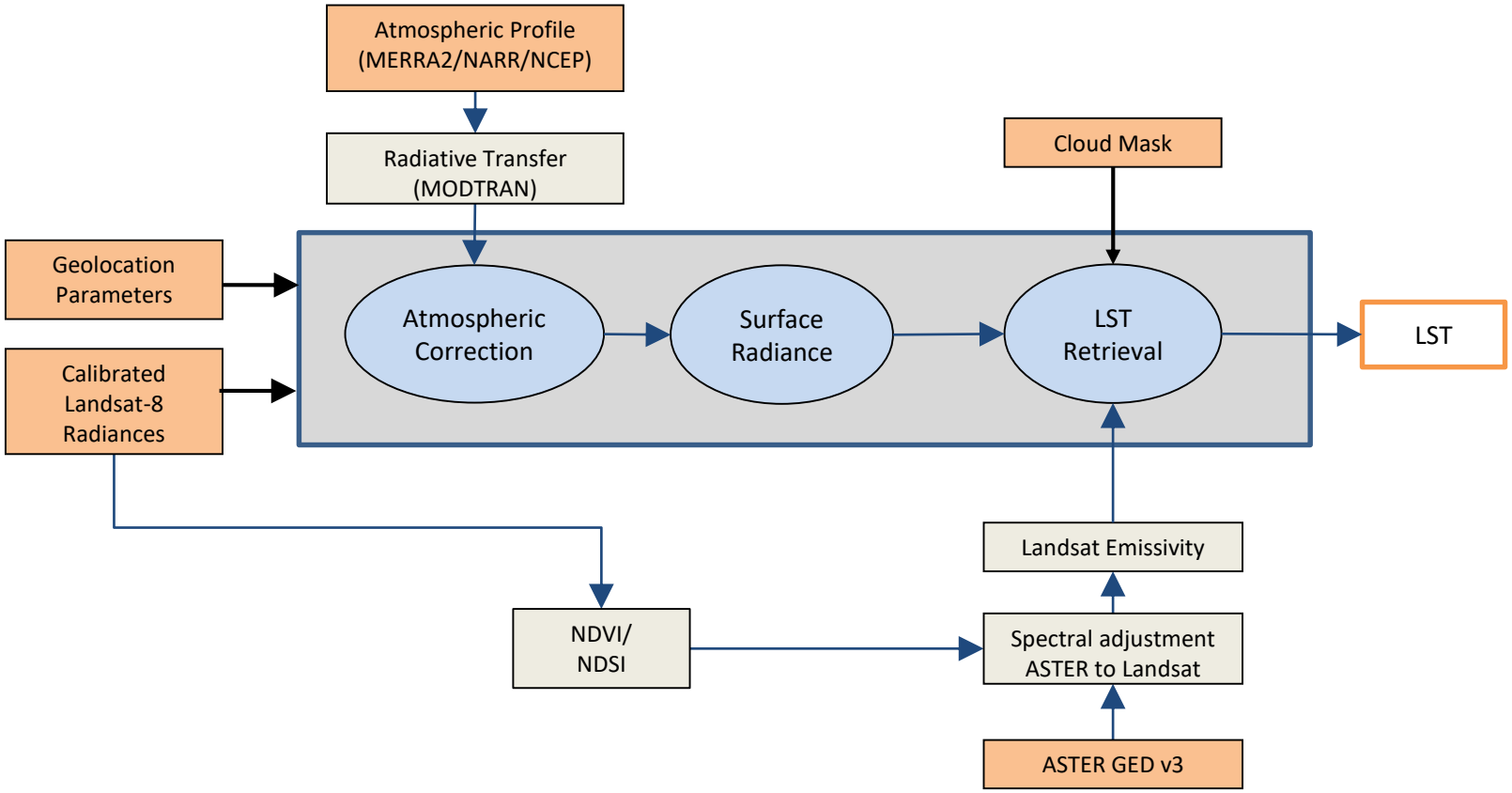
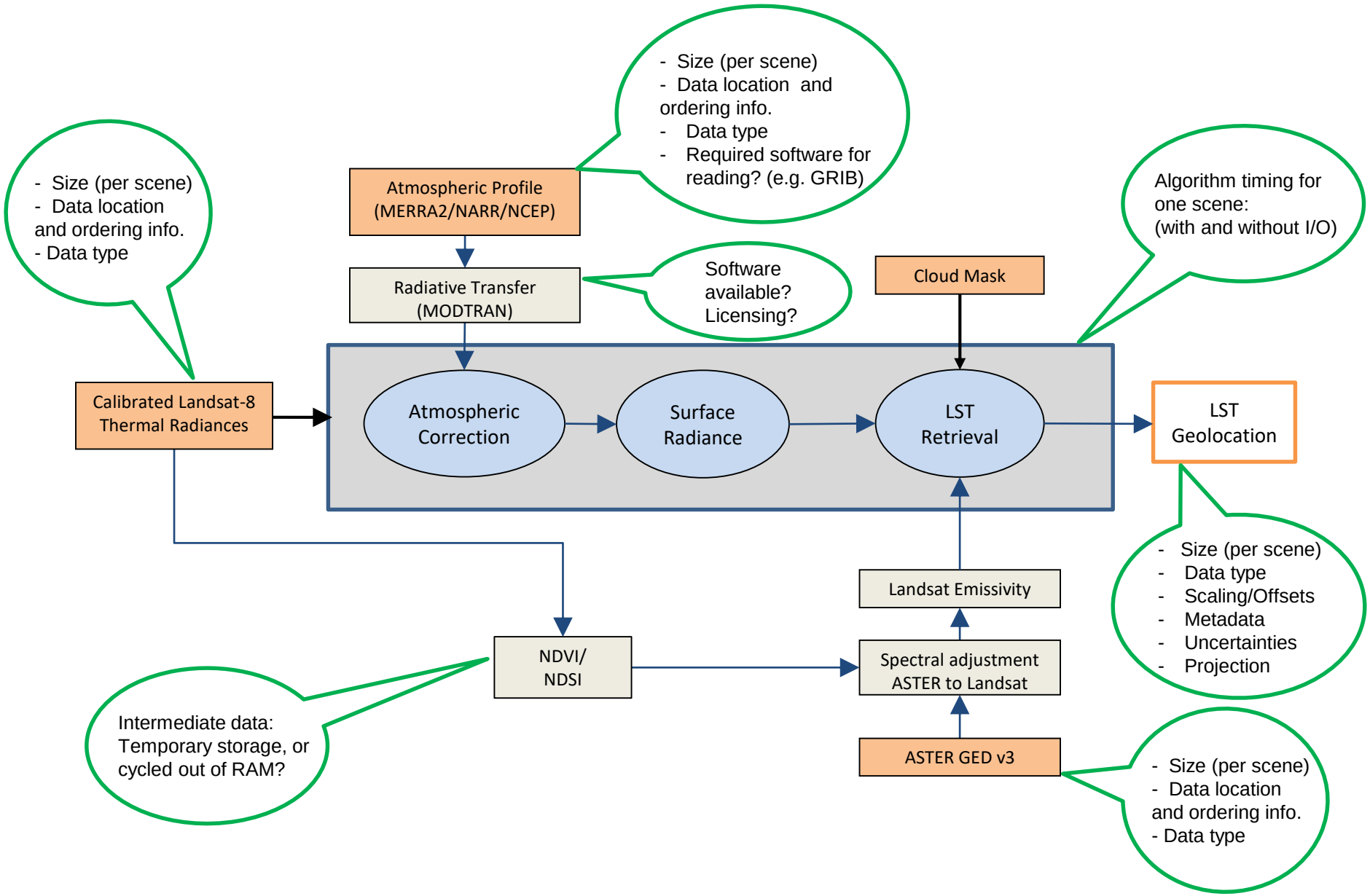
Data system specs

- Product generation chart for each product and platform
- Fill out a questionnaire to help us start understanding existing state

Landsat Surface Temperature Retrieval Schematic



Landsat Surface Temperature Retrieval Schematic



Example Working questionnaire

Survey for Science Co-Is:

For **_every_** water quality variable you are responsible for delivering, provide the following info:

- Sensors being used and what's the product generation process, including required ancillary data and file sizes

o For satellite, wow are these data sources currently being accessed? One off? Batch download? Automated?

o For airborne, how many scenes and their sizes? Where are they?

- Temporal repeat
- Spatial coverage
- Does anything need to be stored locally?
- Current processing time and compute specs (running locally or in cloud)
- Status of algorithms plus language used to develop
- Final format options for data products

Example Working questionnaire

Survey for Science Co-Is:

For **_every_** water quality variable you are responsible for delivering, provide the following info:

- **Sensors being used and what's the product generation process, including required ancillary data and file sizes**

Landsat-8 process generation chart is included.
Ancillary data: Atmospheric profile NCEP/NARR data.
File size:

- Atmospheric Profile: ~22 MB each.
- ASTER GED v3: ~43 MB for 1x1 degree grid. May need multiple files.
- Landsat-8 Radiance data: ~1.5 GB each scene.

o **For satellite, how are these data sources currently being accessed? One off? Batch download? Automated?**

Satellite data are being accessed one at a time, as required. However, it is not h
to automate the process if the list of scenes is supplied.

o **For airborne, how many scenes and their sizes? Where are they?**
Glynn is better suited for questions about the airborne data.

I can answer the following for the Landsat-8

- **Temporal repeat:** 16-day

- **Spatial coverage:** The Landsat-8 scene spans about 180km.

Mapping the schematic and the questionnaire responses to a table of specs

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		Summary	Description of current "system" to get to final product	Variable / Product	Input, Intermediate, Final	Source	Processing Algorithm	Scripting Language / Code Language to Access or Run	File Format	Refs	Size	Need to store locally?	publicly available or license requirements	Status
2	Water Surface Temperature (L8)	Landsat-8 has a temporal repeat of 16-days and a spatial resolution of 100-m resampled to 30-m within a 185km swath. Minus clouds.	Satellite data are being accessed one at a time, as required. Estimate is 15m to run one L8 scene (?) . Run in a Unix/Linux environment.	Geolocated Radiance	Input	Landsat-8 TIR	LP-DAAC	N/A	GeoTIFF	LP-DAAC product page	1.5 GB per scene			downloaded to JPL
3				Atmospheric Profile	Input	Roab, pibal, dr	MERRA2/NARR/NCEP	N/A	HDF5	Gelaro et al 2017, AMS	22 MB each			downloaded to JPL
4				Radiative Transfer Simulations	Input		MODTRAN	Fortran	txt	Berk et al 1999...2014	KBs	yes		we run it
5				[redacted]										
6				Surface Radiance	Intermediate	from MODTRAN run	Radiative Transfer Simulation using MODTRAN	Fortran						
7				[redacted]										
8				ASTER Emissivity	Input	ASTER GED	one static dataset at JPL	N/A	HDF5	Hulley et al 2015, GRL	43 MB / 1deg	stored at JPL		static dataset
9				Landsat Emissivity	Intermediate	ASTER GED	Spectral adjustment algorithm, one line regression that converts between ASTER to Landsat (paper needed)	N/A		Malakar et al 201X, in review		not necessary		
10				Water / Land Surface Temperature	Final	All of the above		Matlab	HDF, GeoTIFF, Mat	Malakar et al 201X, in review	HDF-2.5GB per scene (180km swath); GeoTIFF-0.8GB	yes		Glynn/Nabn to look at file size?