

WORKING GROUP ON ALGORITHM CHANGE, REPROCESSING AND PRIORITIZATION

Basic topics

1. What should the process be for changing algorithms once processing of real MODIS data begins?
2. When should we reprocess data?
3. How should we allocate resources at the TLCF and at the DAAC?

AGENDA

Presentation

NOAA Procedures and Experience (Menzel)

DAAC (Chen)

how they anticipate handling algorithm change and reprocessing.

SDST (Masuoka)

what strategy for configuration management, identification of change,
algorithm change testing

Discussion

Discipline teams

CHANGING ALGORITHMS

Time Scale Considerations

Initial start up period (may take from 6 months to 12 months).

Goal is to get the algorithms to work correctly. Changes will be necessary just to make the products useable. *Strategy* is to have open access by PIs to change their algorithms as necessary.

After achieving stable operations for most algorithms.

Goal is to adjust algorithms for better performance or results. Changes should be demonstrated and reviewed. *Strategy* is to exercise configuration control and execute changes in 3 monthly (?) increments.

Need for Change Considerations

Correction of a mistake. Without the change the product is just plain wrong.

Tuning an algorithm to inflight instrument performance. Results get better.

New algorithm. After examining preliminary results of the original algorithm a change is necessary.

New product. Utilizes features of MODIS data not foreseen pre-launch.

Effect of Change Considerations

Minimal change; no material change but makes product more accurate

Substantial change, but occurs at the end of a processing string so no impact on other parameters or programs.

Substantial change in needed resources, that requires reallocation of processing priorities.

Change at the beginning of a processing string (e.g. the cloud mask) that can effect one or more algorithms or results (including data product formats).

PROCEDURES FOR MAKING CHANGES - Levels of Testing and Review

Following Team Member identification of a proposed change:

1. It is assumed that the Team Member has adequately tested the change and it is immediately inserted in the processing change with no review, testing or documentation.
2. It is assumed to be a correct change, but SDST keeps track of the changes and documents what each version consists of (i.e. there is configuration management, CM, but no evaluation.)
3. In addition to CM, SDST does some form of regression testing to assure that processing flow is still successful and that there is not a substantial resource impact.
4. In addition to the processing test, SDST, together with the team member, does some meaningful amount of shadow processing at the TLCF to provide scientific results from real data for the proposing Team Member to evaluate.
5. After step 4, some form of MODIS Science Team review is required before a change is installed.
6. After, or instead of, step 5 some form of science review external to MODIS is required.

REPROCESSING

Possible scenarios include:

1. No reprocessing for several years. No reprocessing is attempted and real time products are inconsistent as time series because they contain algorithm changes.
2. Reprocessing of data is performed only on MODIS end to end string. This may mean there will not be many changes.
3. Reprocessing of individual product is performed upon request of a Team Member.
4. Reprocessing performed on all products ready on chosen dates. For instance all changes incorporated by January 30, 1999 will be used in a mass reprocessing. The next opportunity will be for a reprocessing starting July 30, 1999. Be there on time or wait. A variation of this is to check the Science Team and establish dates based on when most people agree they will be ready rather than on arbitrary six month centers.

RESOURCE ALLOCATION

How are priorities set for TLCF and DAAC?

Should the DAACS process all of the Level 1A and 1B granules and then some subset of the rest of the products?

Should some products be deferred until more resources are available? How would we decide which ones? (By how ready they are, or how important they are, or who needs them? Who decides the answers to these?

If we decide to subset should we subset the processing by time (e.g. a month each quarter)? Subset by space (e.g. Northern hemisphere or the Atlantic Ocean but not the Pacific)? Subset by density (e.g. every second pixel or every second line)?

What role does TLCF play in operational production?

- Production processing the DAACs cannot do?

- Reprocessing some or all parameters?

- Parallel processing to test algorithm changes?

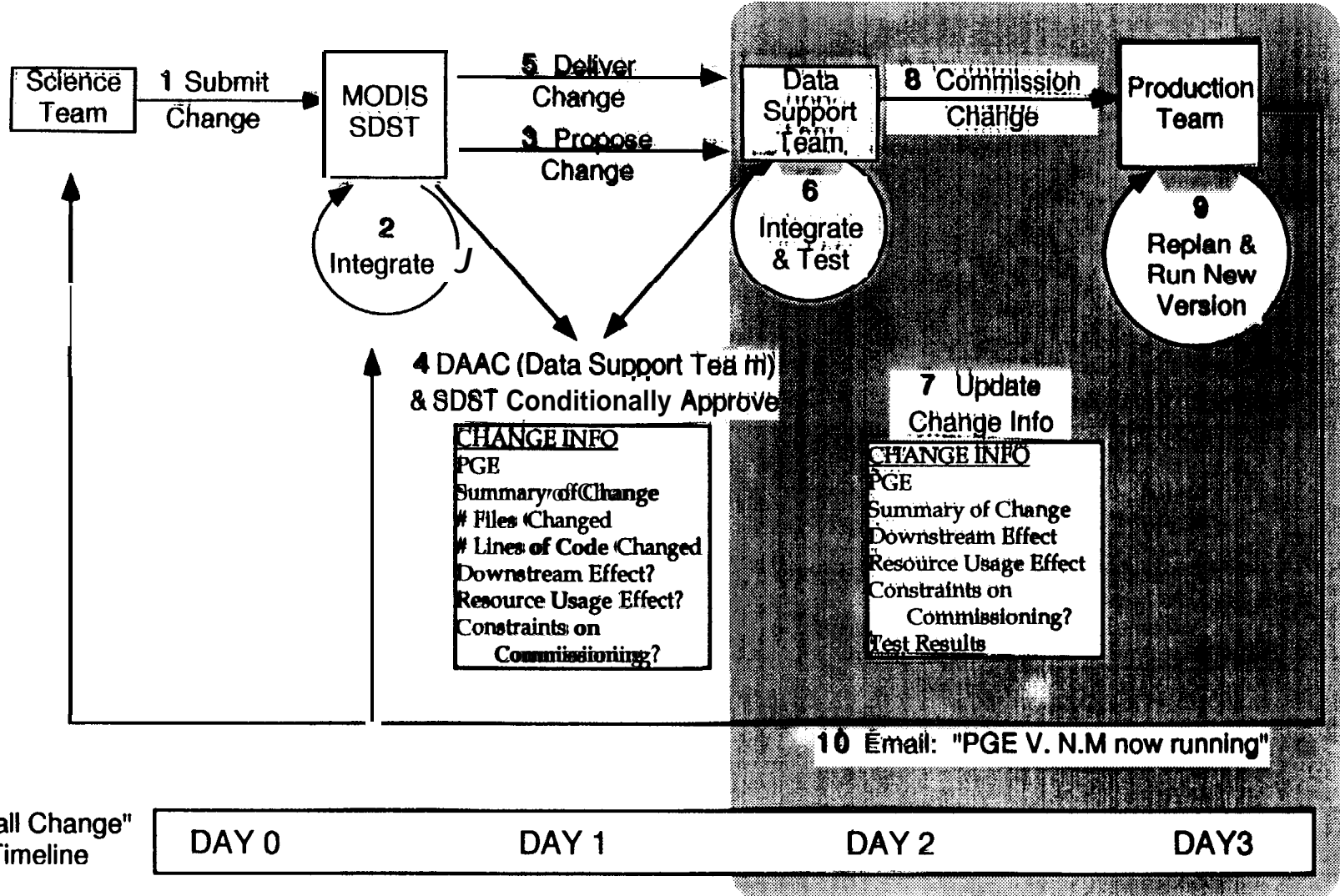
- Optimization of existing algorithms?

- Quality Assurance of ongoing production?

- Test and maintenance of production systems?

Recommend Working Group on Algorithm Change

- **ACTION**: SDST & discipline groups draft strawman for Configuration Management of software
- **ACTION**: Discipline groups decide what constitutes a test data set (post-launch) for algorithm testing & phasing to full strength product generation
- **ACTION**: A subgroup should be formed to guide TLCF & DAAC resource allocation



NESDIS PRODUCT REVIEW PROCESS

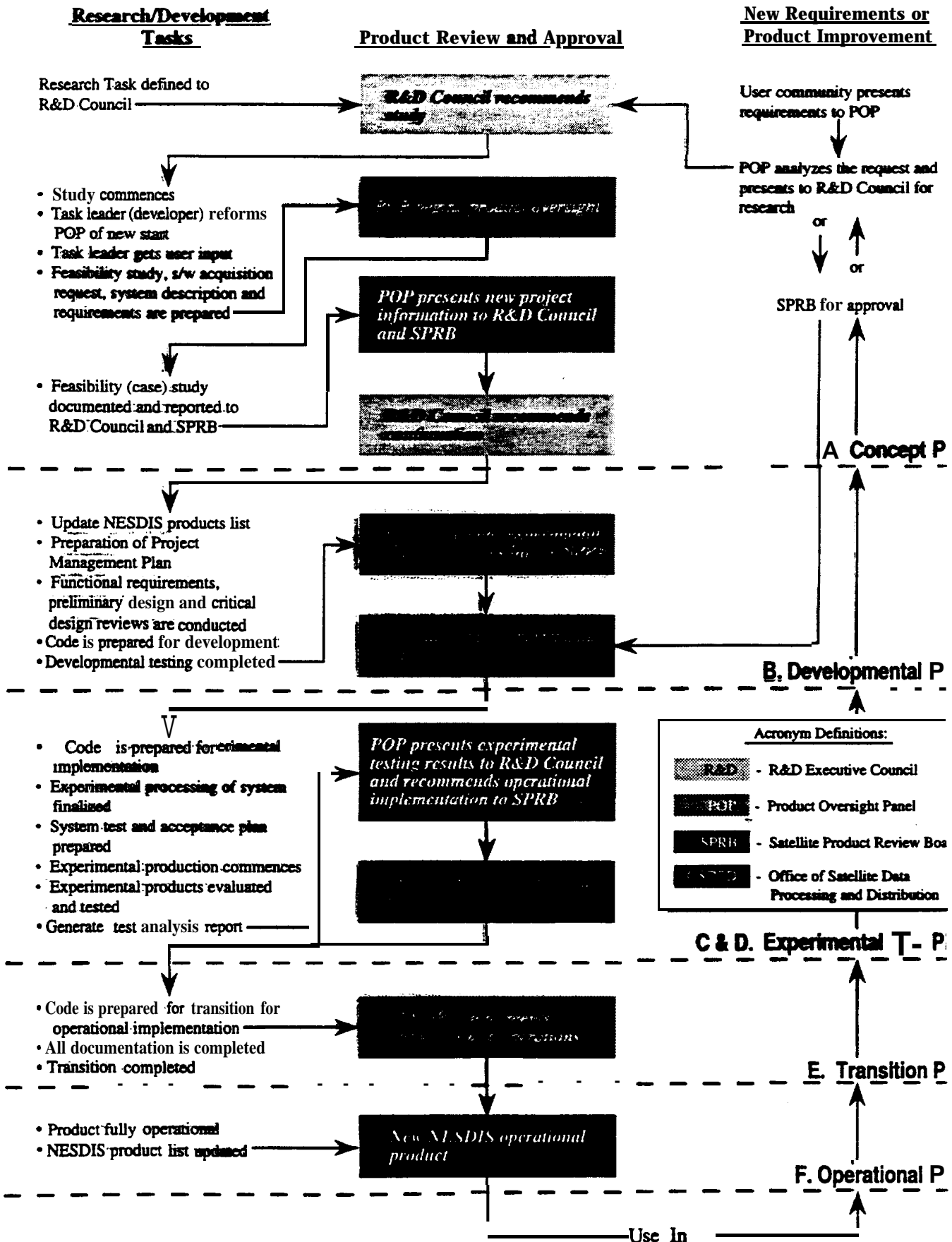


Figure 2

WORKING GROUP ON ALGORITHM CHANGE, REPROCESSING AND PRIORITIZATION

Basic topics

1. What should the process be for **changing** algorithms **once** processing of real MODIS data **begins**?
2. **When** should we reprocess **data**?
3. **How** should we allocate resources at the TLCF and at the DAAC?

AGENDA

Presentation

NOAA Procedures and Experience (Menzel)

DAAC (Chen)

how they anticipate handling algorithm change **and** reprocessing.

SDST (Masuoka)

what strategy for configuration **management**, identification of **change**, algorithm change testing

Discussion

Discipline teams