# Information Update

# GCMRC's Remote Sensing Proposal for Spring 2004

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# Remote Sensing Initiative 2000 - 2003
## (Overview & Background)

**Remote Sensing Initiative** – final report completed in 2003, presentation by Philip Davis (PI) made to TWG in Fall 2003, with specific recommendations for future RS missions:

**Discontinue Analog Imagery** – if possible, fly sensors that provide digital data that are delivered as "orthorectified" imagery

**Multi-Spectral Sensors** - the ISTAR sensor flown in 2002, met needs of ecosystem monitoring, except for projects needing high-resolution topography (sand storage)

**LiDAR** – although several options exist, "Very High Resolution" LiDAR tested in May 2003, provided the best topography in most areas for sand-storage monitoring – Also, has potential for cultural resources monitoring (arroyos)

# Remote Sensing Mission 2004
## (Proposed Elements for this May)

**Conventional Analog CIR** – obtain film images of entire ecosystem and have them scanned to obtain digital data, with additional orthorectification being obtained where mapping is required for long-term monitoring, such as terrestrial vegetation protocols

**Very High Resolution LiDAR** – implement use of previously evaluated protocol to provide topographic data for Fine-Sediment Sand Storage change detection between Lees Ferry & Phantom Ranch

**Test "CHARTS"** – using funds from USGS Cartography, determine whether water-penetrating (green) LiDAR can be used to map channel geometry from Lees Ferry to Phantom (if successful, this could replace current channel mapping protocols using multi-beam hydro acoustics deployed from boats)

# Remote Sensing Mission 2004
## (Overflight Requirements)

**Conventional Analog CIR** – flown system-wide on "fixed-wing" aircraft at an altitude of 8,500 ft such that constant 8,000 cfs stage is captured from the Dam to Phantom Ranch (request 5 days of stable flows from Glen Canyon Dam)

**Very High Resolution LiDAR** – flown from "helicopter" between Lees Ferry and Phantom at an altitude of 300 ft above ground, flight windows each day may be only 2-3 hours over each of the 5 days in which flows are held constant (change-detection protocol tied to constant, low flows)

**Test "CHARTS"** – flown from helicopter at 900 ft between Lees Ferry and Phantom Ranch during one of the constant-flow days (test conditions are optimized by having constant, low flows that promote settling of sediment)

# Remote Sensing Mission 2004
## (Requested Timeframe)

**Last Week of May** – These three flights are intended to be flown simultaneously within a 5-day, constant, low-flow window during the week prior to Memorial Day weekend

*****timing is tied to minimal shadowing, historically clear flight conditions, lower monthly release volume in May versus June & potential for minimal sediment inputs from tributaries**

# Remote Sensing Mission 2004
## (Decision Tree & Permit Status)

**Late May** – Last window before June to reduce shadowing prior to Memorial Day

**Need to Resolve Permitting** – a revised permit application was recently submitted by GCMRC, and unfortunately, the Center needs a decision from NPS to move forward with contracting at this AMWG meeting

**Constant Flows are Critical** – GCMRC needs decision from WAPA on 5-day, low-flow period for proposed flight plan for quality monitoring consistent with historical data sets