



# CEDR CalculateKDv2 Stored Procedure Issue

AMQAW (DI Workgroup)

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# Kd Calculation

- Procedure: usp\_CalculateKD
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- Date: March 14, 2000
- Purpose: This stored procedure calculates the light attenuation coefficient (KD) from data found in TAB\_LIGHT, and transfers that result to TAB\_WAREHOUSE.
- KD records are assigned DEPTH = 0 and LAYER = S, following SECCHI precedence.
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- The method of calculation is the D01 Method found in TAB\_METHOD for KD,
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- The equation is:
- **$$-(\ln(\text{EPARU\_Zd}) - \ln(\text{EPARU\_Zs})) / (\text{DEEP\_DEPTH} - \text{SHALLOW\_DEPTH})$$**
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- Where
- \* DEEP\_PAR is the EPARU\_Z reading at the deepest depth =< 2 meters
- \* SHALLOW\_PAR is the EPARU\_Z reading at the shallowest depth
- \* DEEP\_DEPTH is the depth where DEEP\_PAR was observed
- \* SHALLOW\_DEPTH is the depth where SHALLOW\_PAR was observed
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# CEDR Kd records

- 7/22/1985 – 6/29/2016
- CEDR.MeasuredMetric.MeasureMetricResult
  - 51, 986 Kd records
  - 308 negative Kd records
- BUT negative Kd values are not (should not be) possible

# Causes of negative Kd values

Station	Depth	Parameter	Measure Value	ES (maxcorr)	Parameter	Measure Value	Value (corr)	Kd MeasureValue
WAR001.58	0.1	EPAR_S	1154.9	1.00	EPARU_Z	692.4	692.42	-0.2743
WAR001.58	0.25	EPAR_S	1150.1	1.00	EPARU_Z	598.0	600.48	
WAR001.58	0.5	EPAR_S	1150	1.00	EPARU_Z	438.1	440.02	
WAR001.58	0.75	EPAR_S	1146.2	1.01	EPARU_Z	357.4	360.06	
WAR001.58	1	EPAR_S	1147.8	1.01	EPARU_Z	880.9	886.34	

# Causes of negative Kd values

Station	Depth	Parameter	Measure Value	ES (maxcorr)	Parameter	Measure Value	Value (corr)	Kd MeasureValue
PNK002.52	0.1	EPAR_S	823.17	1.00	EPARU_Z	618.0	617.99	-0.5632
PNK002.52	0.25	EPAR_S	810.24	1.02	EPARU_Z	532.8	541.29	
PNK002.52	0.5	EPAR_S	814.13	1.01	EPARU_Z	447.0	451.98	
PNK002.52	0.75	EPAR_S	798.37	1.03	EPARU_Z	359.3	370.42	
PNK002.52	1	EPAR_S	236.58	3.48	EPARU_Z	294.9	1025.95	

# Proposed Solution

- Update the CalculateKDv2 stored procedure so that any time that a negative Kd value is calculated, a null record is produced with the 'V' or 'CC' problem code.

ResultStatusId	ResultStatus	ResultStatusDescription
5	CC	Cannot Calculate Given Available Data
33	V	Sample results rejected due to QC criteria

- Others ???