



# SEAS status, changes and plans

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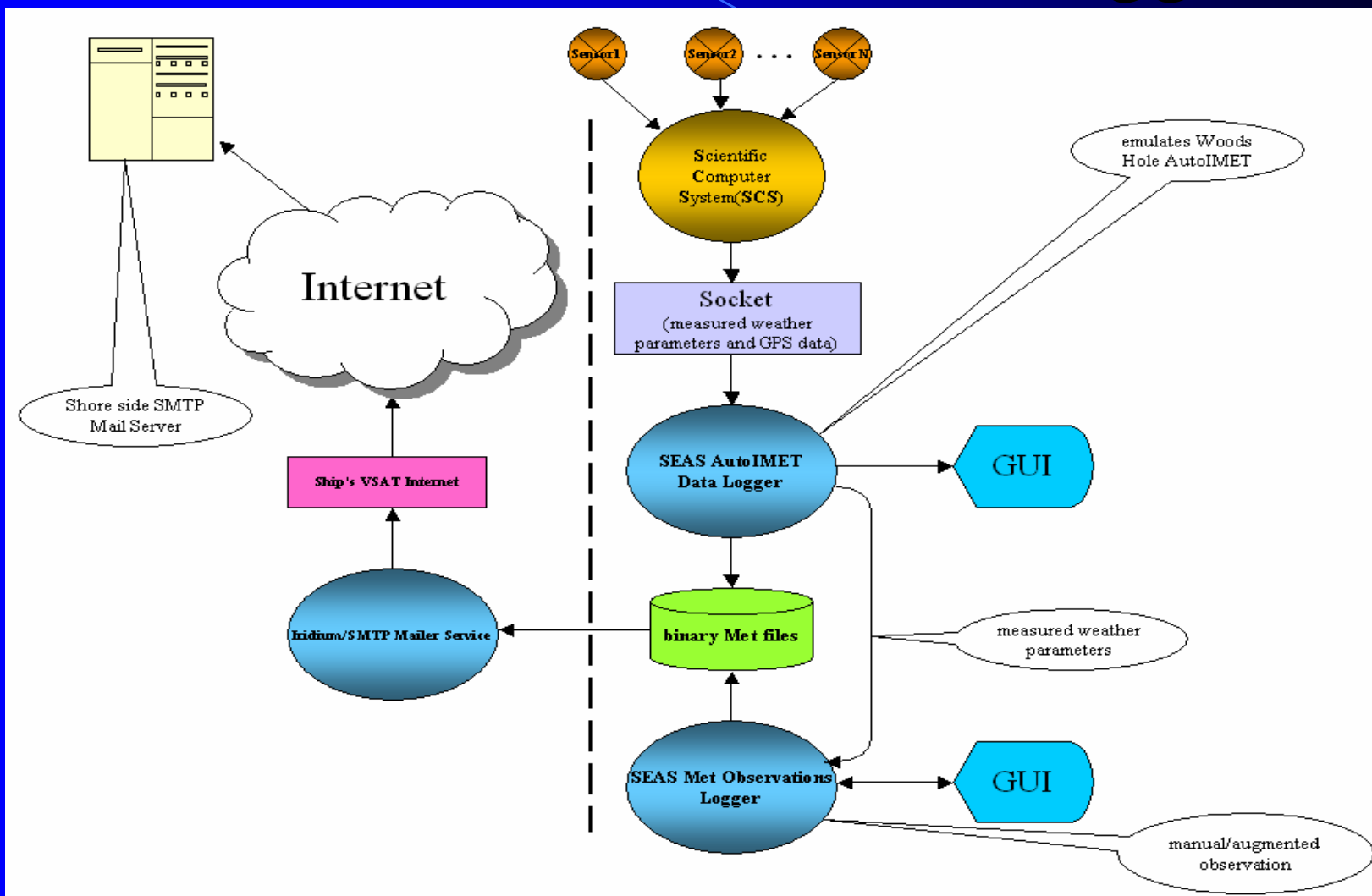
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# SEAS features

- One of the three used electronic logbooks for data acquisition and transmission of meteorological observations.
- Intuitive design for users at all levels of computer experience.
- Improves data accuracy with extensive error checking.
- Includes many tools and utilities to simplify operations.



# SEAS Met Observations Loggers



# Electronic Logbooks Recommendations

1. The dewpoint is calculated to one decimal place:

The software was updated.

Before:

SMVD15 KWNB 191200 RRC  
BBXX

42012 19121 99301 70876 46/// /0908 10204 **2013/** 40224 53009 91150  
22200 00216 10402 20402 70008 333 91210 555 11086 22091 31149  
40810 61149 092081 088083 091078 096076 097076 091073=

After:

SMVD15 KWNB 191200 RRC  
BBXX

42012 19121 99301 70876 46/// /0908 10204 **20132** 40224 53009 91150  
22200 00216 10402 20402 70008 333 91210 555 11086 22091 31149  
40810 61149 092081 088083 091078 096076 097076 091073=

# Electronic Logbooks Recommendations

## 2. Algorithm for calculating dewpoint:

The dew point calculation is based on Casio program code coefficients for saturation vapor pressure with respect to ice, with respect to water.

[http://icoads.noaa.gov/etmc/dpt\\_calc-SEAS.txt](http://icoads.noaa.gov/etmc/dpt_calc-SEAS.txt)

```

BOOL CMetDataLoggerDoc::CalculateDewPoint(const double& dDryBulb,           // in, Celcius degrees
                                          const double& dWetBulb,           // in, Celcius degrees
                                          double& dDewPoint)                // out, Celcius degrees
{
    BOOL bResult = FALSE;
    double dDifference;
    dDifference = dDryBulb - dWetBulb;

    if (dDifference < 0.0)
        // 999 if the dew point can not be computed
        dDewPoint = 999.;
    else{
        // dew point based on casio program code coefficients for saturation vapor pressure
        // with respect to ice, with respect to water
        double coef[7][2] = {
            // ice                water
            { 5.109177955,        6.107799961,
              5.03469897E-1,     4.43651852E-1,
              1.886013408E-2,     1.428945805E-2,
              4.176223716E-4,     2.650648471E-4,
              5.824720230E-6,     3.081240396E-6,
              4.838803174E-8,     2.034080948E-8,
              1.838826904E-10,    6.136820929E-11};

        int i;
        if(dWetBulb <= 0)
            i = 0;
        else
            i = 1;

        double p;
        p = coef[0][i] +
            dWetBulb*(coef[1][i] + dWetBulb*(coef[2][i] +
            dWetBulb*(coef[3][i] + dWetBulb*(coef[4][i] +
            dWetBulb*(coef[5][i] + dWetBulb*coef[6][i]))));

        // use standard atmosphere of 29.92 inches of mercury
        p = p - (1013.20789 * dDifference * (0.00066 * (1. + dWetBulb * 0.00115)));
        if(p >= 0.0){
            double q = log(p);
            dDewPoint = (243.5 * q - 440.8) / (19.48 - q);
            bResult = TRUE;
        }
        else
            dDewPoint = 999.;
    }

    return bResult;
};

```

# Electronic Logbooks Recommendations

3. **Swell coding:** SEAS always includes all swell groups whether they are coded or not.
4. **QC check to correlate the reported wind speed with wind wave height:** Research about the standard algorithm to implement it is needed.
5. **More on-screen information to aid the selection of codes h and VV:** The software was written to meet the standards in the Met Obs Handbook. The WMO standards are different and would have to be recoded.
6. **Prompt the entry of ship speed:** Will be included on the new SEAS version.

# Plans software upgrade

Replacement of SEAS with a newer version in order to bring the system up to date, and to improve its characteristics.

It includes the development in the **I**ntegrated **D**evelopment **E**nvironment (**IDE**) from Microsoft Visual Studio C++ 2008 Standard Edition under Windows XP that improves the portability.

# Motivation

- Improve software design.
- Reduce software complexity.
- Reduce software maintenance costs.
- Increase software understandability.
- Increase software productivity.
- Make ease future changes.



# Thank you!

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